

173046

0000011

ROY F. WESTON, INC.

**CALUMET CONTAINER
LAKE COUNTY
HAMMOND, INDIANA
SITE ASSESSMENT AND
EXTENT OF CONTAMINATION REPORT**

WESTON

**CALUMET CONTAINER
LAKE COUNTY
HAMMOND, INDIANA
SITE ASSESSMENT AND
EXTENT OF CONTAMINATION REPORT**

**Revision 1
October 2002**

Prepared For:

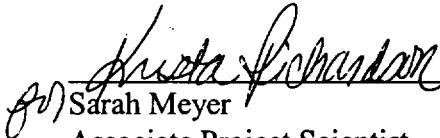
**U.S. Environmental Protection Agency
Emergency and Remedial Response Branch
Region V
77 West Jackson Boulevard
Chicago, Illinois 60604**

**CALUMET CONTAINER
LAKE COUNTY
HAMMOND, INDIANA**
SITE ASSESSMENT AND EXTENT OF CONTAMINATION REPORT

TDD No. S05-0202-001
Document Control No. 222-2A-ACER
October 2002

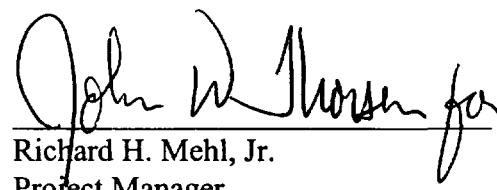
Revision 1
October 2002

Prepared By:


Sarah Meyer
Associate Project Scientist

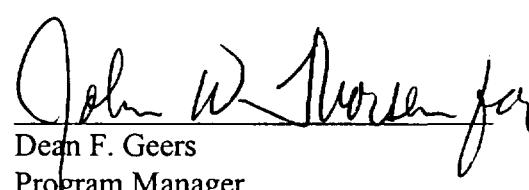
Date: 10/16/02

Prepared and
Approved By:


Richard H. Mehl, Jr.
Project Manager

Date: 10/16/02

Approved By:


Dean F. Geers
Program Manager

Date: 10/16/02

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
1	INTRODUCTION	1-1
1.1	Objectives and Scope of Site Assessment	1-1
1.2	Report Organization	1-1
2	SITE BACKGROUND	2-1
2.1	Site Description	2-1
2.2	Site History	2-3
3	ENVIRONMENTAL INVESTIGATION PROCEDURES	3-1
3.1	Sampling Activities	3-1
3.1.1	Site Layout	3-1
3.1.2	XRF Screening	3-2
3.1.3	Surface and Subsurface Soil Sampling	3-2
3.1.4	Sediment Sampling	3-4
3.1.5	Geotechnical Sampling	3-5
3.1.6	Wetland Delineation	3-5
4	ENVIRONMENTAL INVESTIGATION RESULTS	4-1
4.1	XRF Screening	4-1
4.2	Surface and Subsurface Soil Sampling Results	4-2
4.2.1	Metals in Soil	4-2
4.2.2	VOCs and BTEX in Soil	4-4
4.2.3	SVOCs in Soil	4-5
4.2.4	PCBs and Pesticides in Soil	4-5
4.3	SADA Software Use for Visualization of On-Site Extent of Contamination and Human Health Risk	4-5
4.4	Geotechnical Sampling	4-7
4.5	Wetland Delineation	4-8
5	NATURE AND EXTENT OF CONTAMINATION	5-1
5.1	VOC Extent of Contamination	5-1
5.2	Metals Extent of Contamination	5-2
5.3	Volume Estimate of Soil Contaminated with Comingled Waste	5-3
6	CONCLUSIONS	6-1
7	REFERENCES	7-1

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>
2-1	Topographical Site Location Map
2-2	Site Map
3-1	Soil Boring Location Map
4-1	Sample Location and Criteria Exceedences Map
4-2	Wetlands Delineation Map
5-1	Extent of VOC Contamination Map
5-2	Extent of Metals Contamination Map
5-3	Extent of Contamination Map, Comingled Waste

LIST OF TABLES

<u>Table</u>	<u>Title</u>
4-1	Soil XRF Lead Screening Results
4-2	XRF/Laboratory Confirmation Sampling Lead Analysis Results
4-3	Surface and Subsurface Soil and Sediment Lead and TAL Metals Sampling Results
4-4	Surface and Subsurface Soil Volatile Organic Compounds Sampling Results
4-5	Surface and Subsurface Semi-Volatile Organic Compounds Sampling Results
4-6	Surface and Subsurface Soil Pesticides Sampling Results

LIST OF APPENDICES

Appendix

A	Geoprobe Boring Logs
B	XRF Data
C	Analytical Data
D	Geotech Sample Data Results
E	SADA Extent of Contamination Plots
F	SADA Human Health Risk Plots

SECTION 1

INTRODUCTION

From 29 April to 2 May 2002 and 20 and 21 May 2002, United States Environmental Protection Agency (U.S. EPA) On-Scene Coordinator (OSC) Verneta Simon and the Weston Solutions, Inc. (WESTON®) Superfund Technical Assessment and Response Team (START) initiated a site assessment and extent of contamination investigation at the Calumet Container site located in Hammond, Lake County, Indiana. The site assessment activities were conducted under Technical Document Directive (TDD) S05-0202-001. The analysis of the samples collected during the site assessment was under TDD S05-0202-002.

1.1 OBJECTIVES AND SCOPE OF SITE ASSESSMENT

The objective of this site assessment was to gather information to characterize the nature and extent of soil contamination at the Calumet Container site.

To accomplish these objectives, the site assessment activities consisted of screening soil for lead content with x-ray fluorescence (XRF), collecting surface and subsurface soil samples from the site and selectively analyzing the samples for organic and inorganic parameters.

1.2 REPORT ORGANIZATION

This site assessment report is organized into the following sections.

- Introduction – The introduction provides a brief description of the objective and scope of the site assessment activities.
- Site Background – The site background section provides the site description, site history, and a summary of previous investigations.

- Environmental Investigation Procedures – The environmental investigation procedures section describes the methods and procedures used during the site assessment activities.
- Environmental Investigation Results – The environmental investigation results section describes the results of sample analysis.
- Nature and Extent of Contamination – The nature and extent of contamination describes the estimated areas and volume of contaminated site soils.
- Conclusions – The conclusions summarize the findings of the site assessment activities.
- References – The reference section provides a list of references utilized in compiling the report.
- Tables, Figures, and Appendices – The tables, figures, and appendices will be provided at the end of the report.

SECTION 2

SITE BACKGROUND

2.1 SITE DESCRIPTION

The Calumet Container site is located 3631 State Line Avenue in Hammond, Lake County, Indiana. The geographic coordinates of the site are 41° 38' 57" north latitude and 87° 31' 25" west longitude at an altitude of 476 feet above sea level. Approximately 90 percent of the 11-acre, triangular-shaped site is located in Lake County, Indiana and the remaining 10 percent is located in Cook County, Illinois (Figure 2-1). The site is bounded to the north by 136th Street, and in all other directions by the active Indiana Harbor Belt Railway. A chain-link and barbed-wire fence surrounds the site. Other key features on site include patches of dense, ground-cover vegetation and mature trees, an old building foundation, three abandoned tanker trucks and drums and overgrown piles of miscellaneous debris.

On 29 April 2002, a fence contractor for West Shore repaired the chain-linked fence along the pipeline right-of-way. Previously, access to the site was unrestricted due to the breaches in the fence. The chain-link and barbed-wire fence that surrounds the site has a locked gate on the north side, accessed by 136th Street. Along 136th Street, a 40-foot section of fence was collapsed by a pile of soil that had apparently been dumped onto it. Evidence of recent trespassing was still evident and included worn footpaths that cross the site, a fire ring surrounded by chairs and a pet grave with flowers and a flag adorning it, all of which was previously observed during the 20 February 2002 site assessment.

Large piles of scrap metal, tires and semi-trailer frames were seen on the site. START estimated the scrap metal from the semi-truck trailers to be approximately 420 cubic yards. The majority of the scrap metal is located on the northwest corner of the site with a few piles along the West Shore pipeline right-of-way in the middle of the site.

Both industrial- and residential-use land surrounds the site and within 1/4 mile of the site boundary are recreational-use bodies of water. A mobile home park is located directly adjacent to the site to the east and another is across 136th Street to the northwest. A small pond and wetland are situated in the northeast corner of the property. Across 136th Street to the north is Wolf Lake, an interstate fishing and recreational lake (Figure 2-2). Beyond the rail line to the southwest is Powderhorn Lake and the Burnham Woods forest preserve. Lake Michigan is located less than 3 miles to the northeast of the site.

Two studies have been done to evaluate ground- and surface-water flow patterns in the area of the site (Wapora, 1979 and Soil Testing Services, 1980). Both studies concluded that groundwater tends to flow in a northeast direction from the site. Intermittent ponded surface water at the site has been documented in historic site photographs and records. The movement of surface water off the site is not easily characterized; however, there may be a potential for surface water to flow off site towards nearby Wolf Lake, Powderhorn Lake, or a small stream to the northeast of the site that feeds Wolf Lake. In the past, recreational use of Wolf Lake has been impaired by, among other things, direct or indirect industrial discharges to the lake (U.S. EPA, 1981). A third study of site hydrogeology indicated that the water table is 3-4 feet below the ground surface (bgs)(King, 1979).

Soil types vary on site and adjacent properties. The unconsolidated layer of soil above bedrock in the area of the site is 90-100 feet thick and composed of 15-20 feet of beach and shoreline deposits interbedded with fine gravel, silt and clay over silty, sandy, clay till. It has been noted that the accumulation of oil and paint solids on the site may have acted to seal the soil surface in some areas and not allow percolation of surface water into the ground at those locations (King, 1979). A well log for an installation in the Burnham Woods forest preserve adjacent to Powder Horn Lake, southwest of the site, revealed that the upper 44-feet of soil is clay, followed by 118-feet of shale (Panknin, 1982). The railroad grade along the eastern edge of the site is composed of fill material, slag, cinders, sand and gravel (King, 1979). North of the site, at the southern end of Wolf Lake are small areas of significant wetlands, classified as Type 4 Deep Marsh (U.S. EPA, 1981).

Service utilities were noted on the site property (Figure 2-2). An overhead electrical power line enters the property from 136th Street near the gate and terminates on the site at a control box that is mounted on a pole approximately 150 feet south of the gate. There is a buried West Shore petroleum pipeline on the site that runs east to west across the property under a cleared right-of-way. A buried Praxair Nitrogen pipeline also crosses the site. A geophysical report prepared for the Indiana Department of Environmental Management (IDEM) in 1986 indicated the presence of markers or breather pipes for Badger, Marathon, Amoco and Union Carbide pipelines on the site property (Bartlett and Ursic, 1986). According to the U.S. EPA files, there are no drinking water wells in the area that can be threatened by groundwater contamination in the area (Pankarin, 1982).

2.2 SITE HISTORY

The Steel Container Corporation, also known as the Calumet Container Corporation, began operations in the 1960's and was owned and operated by Mr. John Jagiella. Operations at the site included drum and pail reconditioning (5- to 55- gallon) and fiber drum processing. Most of the containers that were serviced were used in the paint and graphic arts industries. In July 1981, Mr. Jagiella filed for bankruptcy in Chapter 11 Federal Bankruptcy Court. The Lake County Commissioners currently own the bulk of the Calumet Container site that is located in Indiana. A small parcel of land in the northwest corner of the site is privately owned by Mr. George Holmes.

During the period that the Calumet Container Corporation facility was in operation, the company was cited with numerous environmental violations regarding air and water contamination and material disposal. In 1980, the Illinois State Attorney General began an investigation to evaluate the movement of groundwater from the site into Illinois (Bitter, 1984). It was determined that groundwater in the area of the site contained elevated levels of organic compounds, including phenolics, toluene, xylene, and PCBs, and heavy metals and that the groundwater had the potential to migrate into Illinois-owned soils and nearby Wolf Lake (Soil Testing Services, 1980). The State of Indiana Stream Pollution Control Board ordered Mr. Jagiella to clean up spilled residues on the

site and the owner was eventually issued a Final Order by the State of Indiana. Subsequent property inspections following the Final Order yielded violations of that Order and on 16 April 1982, the State of Indiana Attorney General filed an Enforcement Action against Calumet Container Corporation (Bitter, 1984).

Five days after the State of Indiana Enforcement Action was filed, on 21 April 1982, an explosion and fire consumed the main building at the site and the U.S. EPA began a 14-day Immediate Removal Action on 7 May 1982. Thirty cubic yards of sludge and 5,500 gallons of contaminated liquid were removed from the site and disposed of at that time. Analysis of surface water runoff, contents of processing and holding tanks on site and soil at the loading dock area at the time immediately following the fire indicated the presence of lead, chromium, cyanide, arsenic, phenolics, other organics, oil and grease. Following the fire, the U.S. EPA notified Mr. Jagiella and requested that he volunteer to clean up the site. Mr. Jagiella then attempted to organize a group of responsible parties to clean up the site, but failed to do so and as a result, the U.S. EPA initiated a cleanup (Madany and Bowden, 1982).

In accordance with section 104 (a) (1) CERCLA, a Planned Removal Action began at the site on 9 January 1984. U.S. EPA contractor Associated Chemical and Environmental Services of Oregon, Ohio, began a surface cleanup of containerized liquids, solids and sludges that were considered to be hazardous materials. A heavily contaminated area used as a loading dock during facility operation was completely dismantled and removed. Approximately 2-feet of soil was removed from underneath the loading dock and the area was backfilled and capped with 162 tons of clay. Other areas of the site that contained visibly stained soils were also excavated and backfilled with clay (Bitter, 1984).

A site assessment conducted by U.S. EPA and START on 20 February 2002 discovered that the site was littered with several drums, automobile and scrap metal debris, a plating vat, three tanker trucks, an old building foundation and paint chips and residue. A cluster of 14 drums was noted near the

north gate of the property. Five investigative soil samples and one drum sample were collected and analyzed for a variety of potential contaminants. Sampling results for metals analyses indicated levels of lead, chromium, and PCBs in site soils above U.S. EPA Region IX PRG criteria levels. Based on the results of TCLP analysis of site soils and according to 40 CFR Chapter 1 - 261.24, hazardous waste characteristics of lead and cadmium were detected in site soils. Material sampled from a drum at the site was determined to be hazardous waste based on its flashpoint. The flashpoint of the drummed material was 80 °F which exceeds the criteria for hazardous waste.

SECTION 3

ENVIRONMENTAL INVESTIGATION PROCEDURES

From 29 April to 2 May 2002 and 20 and 21 May 2002, a site assessment of the Calumet Container property was conducted by U.S. EPA and WESTON START personnel to determine extent of the contamination present in surface and subsurface soils. On-site personnel included OSC Verneta Simon (U.S. EPA) and Don Paxton, Todd Williams, Heather Schichtel, and Greg Gehrig (START). The investigation was conducted in two sampling events. Specific site assessment activities included:

- Site Layout
- XRF Screening
- Geoprobe Investigation and Soil Sampling
- Geoprobe Investigation and Sediment Sampling
- Geotechnical Sampling
- Wetland Delineation

3.1 SAMPLING ACTIVITIES

3.1.1 Site Layout

On 29 April 2002, a sampling grid was layed out to identify locations where Geoprobe core samples would be collected. A GPS was used to navigate from each location to the next, as well as record the GPS location of each point. The grid was created using a 100-foot grid spacing throughout the site. The triangular shape of the site and topographical obstacles such as the pond, trees, and large scrap piles necessitated using offsets from the proposed locations identified on the map used for the grid layout. Trees onsite made GPS reception difficult in some areas, causing some additional skewing of the site grid.

3.1.2 XRF Screening

A Niton XRF unit was used to screen 143 surface and sub-surface soil and sediment samples from 53 locations on site to determine the location of soil and sediment that contained elevated metal concentrations. Soil and sediment samples were retrieved by Geoprobe coring techniques. XRF screening depths were selected within each soil core to characterize the surface and subsurface soils. Each sample core was typically screened with two to four interval locations ranging from the surface to a 4-foot depth. Plastic zipper-locking bags were filled with sample material and then screened with the XRF unit during the first portion of the assessment, and during the second portion of the assessment the XRF unit was placed directly on the exposed soil in the acetate sleeve that was used to collect the soil core. The primary analyte of interest during the investigation was lead, although 13 other analytes are also detectable by the XRF unit. Screening results were datalogged with the XRF unit. At 13 screening locations, soil samples were collected from the depth interval that was screened and submitted for confirmatory laboratory analysis of lead content. The results of the confirmation sampling are further discussed in Section 4.2.1 of this report.

3.1.3 Surface and Subsurface Soil Sampling

During the 29 April to 2 May 2002 and 20 and 21 May 2002 Site Assessment, 26 investigative surface and subsurface soil samples were collected in order to define the native soil and extent of contamination on site. Samples were collected from selected grid locations and five biased, non-grid locations. Offsets were used in some locations where obstacles were encountered. Sample collection locations are shown in Figure 3-1.

Samples were collected using an ATV-mounted Geoprobe. The ATV-mounted Geoprobe drives a 4-foot long, 2-inch diameter hollow sampling rod into the ground by means of a motor-driven hydraulic hammer. After the rod has been driven into the soil to the desired depth, the motor is reversed to remove the sampling rod. The hollow rods are lined with an acetate insert to collect

samples and help preserve the cleanliness of the rod interior. After the rod was extracted from the ground, the acetate insert was removed, cut open lengthwise so contents could be observed, geologically logged, and sampled. Geoprobe boring logs are provided in Appendix A.

A total of 26 investigative surface and subsurface soil samples were collected [CC-(0,0) 1'-2', CC-(0,1) 1'-2', CC-(0,2) 1'-2', CC-(0,3) 1'-2', CC-(0,4) 1'-2', CC-(0,10) 3'-4', CC-(0.5, 2.5) 1'-2', CC-(0.5,2.5) 3'-4', CC-(1,2) 2'-3', CC-(1,3) 1'-2', CC-(1,5) 1'-2', CC-(1,7) 1'-2', CC-(1,8) 3'-4', CC-(1,9) 3'-4', CC-(2,3) 1'-2', CC-(2,4) 1'-2', CC-(2,8) 0-6", CC-(2,8) 2'-4', CC-(3,5) 1'-2', CC-(3,7) 1'-2', CC-(3,8) 0-1', CC-(3,10) 0-2', CC-(4,7) 1'-2', CC-(5,6) 0-6", CC-(5,7) 1'-2', and CC(6,7) 3'-4']. Soil samples were collected from the acetate core liners and placed into clear, wide-mouth, glass jars with Teflon-lined lids. Sterile nitrile gloves were donned before the first sample was collected and changed before each subsequent sample. Soil cores were generally collected from 0 to 4 feet below ground surface (ft. bgs) with the exception of one Geoprobe core located at point CC-(0.5, 2.5) which was collected from 0 to 8 ft. bgs. The sample intervals selected for analysis were biased based on Multi-RAE VOC readings, presence of odors, XRF readings, and the presence of paint chips or colored materials (blue, yellow, green, etc.).

Seventeen samples were collected for analysis of selected organic compounds. Once the sampling depth was determined for a soil core, a grab sample was first collected for volatile organic compounds (VOCs) using a disposable EnCore sampler. VOC sampling was followed by the collection of a sample for semi-volatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs). Sample aliquots for individual parameters were consistently collected in this order to minimize volatilization of organic compounds prior to sample collection. Ten samples were analyzed for VOCs, SVOCs, pesticides and PCBs [CC-(0,3) 1'-2', CC-(0,4) 1'-2', CC-(1,3) 1'-2', CC-(1,7) 1'-2', CC-(2,4) 1'-2', CC-(2,8) 2'-4', CC-(3,5) 1'-2', CC-(3,10) 0-2', CC-(5,7) 1'-2', and CC-(6,7) 3'-4'], and seven samples were analyzed for VOCs only [(CC-(0,0) 1'-2', CC-(0,1) 1'-2', CC-(0,2) 1'-2', CC-(0.5,2.5) 3'-4', CC-(1,2) 2'-3', CC-(1,5) 1'-2', and CC-(2,3) 1'-2']. During the second sampling event, 20 and 21 May 2002, two soil samples [CC-(1,2) 2'-3' and CC-(0.5,2.5) 1'-2'] were analyzed

for benzene, toluene, ethylbenzene, and xylene (collectively known as BTEX) compounds instead of for VOCs, SVOCs, PCBs and pesticides because laboratory results from the previous sampling event revealed a predominance of BTEX compounds relative to other organic compounds.

In addition to organic compounds, three soil samples were also sampled for Target Analyte List (TAL) metals [CC-(2,8) 2'-4', CC-(3,10) 0-2', and CC(6,7) 3'-4'] and an additional five investigative soil samples were analyzed for TAL metals only [CC-(1,8) 3'-4', and CC-(1,9) 3'-4', CC-(3,7) 1'-2', CC-(3,8) 0-1', and CC-(4,7) 1'-2']. Five investigative soil samples were collected for lead only, as a supplement to those samples that were analyzed for TAL metals, for the purpose of confirming lead-in-soil contents as determined by XRF screening [CC-(0, 10) 3'-4', CC-(0.5, 2.5) 1'-2', CC-(1, 2) 2'-3', CC-(2, 8) 0-6", and CC-(5, 6) 0-6"].

All samples were labeled and preserved in coolers with ice immediately after sample collection. At the end of the sampling period, samples were packed, transported, and relinquished under chain of custody to ACE Technologies, Inc. located in The Woodlands, Texas and Accura Analytical Labs, Inc. located in Norcross, Georgia for analysis.

Spent personal protective equipment (PPE) and contaminated debris that was generated during the sampling event were containerized in a 55-gallon drum at the site and labeled "PPE".

3.1.4 Sediment Sampling

Three sediment cores were collected using a Geoprobe along the perimeter of the pond, which is located in the northeast corner of the site, to determine if contaminates have migrated into the pond. Each core was geologically logged. Core SD-01 was collected from the northwest side of the pond, core SD-02 was collected from the west side, and core SD-03 was collected from the southwest side. Sediment cores were screened with an XRF and Multi-RAE and logged in the same manner as the

soils samples. One sediment sample taken from core SD-02 [CC-(SD-02) 0-1'] was analyzed for lead as confirmatory analysis for comparison to XRF screening results.

3.1.5 Geotechnical Sampling

Geotechnical sampling was conducted to determine the potential for future uses of the site such as the placement of a state road along the western boundary of the site. Five soil samples were collected using a Geoprobe for analysis of geotechnical parameters. Sample collection locations are shown in Figure 3-2. Geotechnical samples were collected in 24-inch-long, 3-inch-diameter Shelby soil collection tubes from grid locations (1, 10), (1, 8), (1, 6), (1, 5), and (1.5, 3.5). The tube was advanced 24-inches or to refusal, starting from where native soil was observed. On the northern portion of the site where samples were collected, native soils were observed at the surface. On the southern portion of the site where fill was present, native soils were observed approximately two feet bgs. Samples were analyzed for grains size, particle distribution, United States Geological Survey (USGS) Soil Conservation Survey soil classification, moisture content, organic content, specific gravity, density, and Atterburg limits. Samples were sent to CGC, Inc. located in Madison, Wisconsin for geotechnical analysis.

3.1.6 Wetland Delineation

On 20 May 2002, a wetland investigation of the approximately 11-acre site was performed. The purpose of this investigation was to identify, delineate, and determine the quality of the wetlands and other waters present onsite. Wetlands and other waters were identified and delineated at the site using a United States Army Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) defined method and best professional judgment. A GPS unit and a digital camera were used to document wetland features observed onsite.

SECTION 4

ENVIRONMENTAL INVESTIGATION RESULTS

A Site Assessment was performed to determine the extent of contamination at the Calumet Container site. This section discusses the results of the site assessment activities listed below:

- XRF Screening
- Surface and Subsurface Soil Sampling
- Sediment Sampling
- Geotechnical Sampling
- Wetland Delineation

4.1 XRF SCREENING

XRF screening was conducted on 143 samples, at surface and subsurface intervals, from 53 sample locations. Screening results for lead concentration in soil are presented in Table 4-1. Results indicated that 26 soil samples contained lead concentrations that exceeded 800 ppm. The highest lead concentration detected by XRF (6,848 ppm) was found at location CC-(5,7), approximately 2 feet bgs. Thirteen of the locations that were screened by XRF were selected for lead analysis by wet chemical methods. Results of the confirmation analysis are presented with corresponding field XRF results and determinations of data accuracy and correlation in Table 4-2. A complete listing of XRF field data is presented in Appendix B.

The correlation of the XRF data for lead concentration and the results of the wet chemical analysis technique appear to be within the XRF unit's statistical comparison of precision (\pm factor) for several samples. For example, at location CC-(3,7), XRF analysis determined that the lead concentration in the soil was 157.8 ± 90.5 parts per million (ppm) or mg/kg, and laboratory analysis on the same sample determined that the lead concentration was 133 mg/kg. The result of the laboratory confirmation falls within the predicted range of precision for the XRF unit. At location CC-(3,8) the XRF result was 752 ± 74.4 mg/kg, and the laboratory result was 805 mg/kg. Again,

the laboratory confirmation falls within the predicted range of precision for the XRF unit. Other sample results did not correlate well. Relative percent difference (RPD) ranged from 3 percent to 94 percent between XRF and laboratory results. Instances of poor correlation between XRF and laboratory results was likely due to the "nugget effect" whereby the high or low level was encountered from the presence of a piece of the constituent during either the XRF screen or the laboratory analysis. A variance is observed between the results of the two techniques when the "nugget" is only encountered during one of the analyses, either the XRF screen or the laboratory technique.

4.2 SURFACE AND SUBSURFACE SOIL SAMPLING RESULTS

Twenty-six investigative soil samples were collected from 24 locations during this investigation and submitted for laboratory analysis. Analytical parameter selections for each sample are outlined in Section 3.2. Results for these analyses were compared to regulatory criteria levels and presented in Tables 4-3 through 4-6. Three sets of criteria were used for comparison in the data presentation; U.S. EPA Region IX Preliminary Remediation Goals (PRGs), the State of Indiana Risk Integrated System of Closure (RISC) cleanup protocols, and the Illinois Environmental Protection Agency (IEPA) Tiered Approach to Corrective Action Objectives (TACO). Criteria levels for industrial-use land were used to evaluate the data. Figure 4-1 shows sample locations, analytical results, and XRF screening results that exceeded the criteria. Analytical results are presented in Appendix C.

4.2.1 Metals in Soil

Surface and subsurface soils were sampled at eight locations and submitted for TAL metals analysis [CC-(1,8) 3'-4', and CC-(1,9) 3'-4', CC-(2,8) 2'-4', CC-(3,7) 1'-2', CC-(3,8) 0-1', CC-(3,10) 0-2', CC-(4,7) 1'-2', and CC-(6,7) 3'-4']. Five out of nine samples had concentrations of metals that were above industrial criteria levels (Table 4-3). The U.S. EPA Region V PRG for lead concentration

in industrial soil (800 mg/kg) was used to evaluate the lead data. For other metals, the Region IX PRG, TACO, or RISC value, whichever was most conservative, was used to evaluate the data.

Lead concentrations in the samples ranged from 2.8 mg/kg to 13,000 mg/kg. Lead concentrations exceeded the criteria level (800 mg/kg) at eight sampling locations [CC-(0.5,2.5) 1'-2', CC-(1,2) 2'-3', CC-(1,8) 3'-4', CC-(1,9) 3'-4', CC-(2,8) 2'-4', CC-(3,8) 0-1', CC-(3,10) 0-2', and CC-(6,7) 3'-4'].

The highest concentrations of lead were detected at the following sampling locations:

- CC-(1,9) 3'-4'(13,000 mg/kg); and
- CC-(0.5,2.5) 1'-2' (6,520 mg/kg).

Concentrations of cadmium in soils ranged from undetectable to 27,000 mg/kg. Cadmium concentrations exceeded the criteria level (780 mg/kg) in soils at four sampling locations [CC-(3,10) 0-2', CC-(1,9) 3'-4', CC-(1,8) 3'-4' and CC-(2,8) 2'-4']. The highest concentrations of cadmium were detected at the following sampling locations:

- CC-(3, 10) 0-2' (27,000 mg/kg); and
- CC-(1, 9) 3'-4' (21,000 mg/kg).

Concentrations of arsenic in soils ranged from undetectable to 280 mg/kg. Arsenic concentrations exceeded the criteria level (20 mg/kg) in soils at three sampling locations:

- CC-(3,10) 0-2' (280 mg/kg);
- CC-(3,7) 1'-2' (64.9 mg/kg); and
- CC-(2,8) 2'-4' (45 mg/kg).

Chromium and iron criteria were also exceeded at two soil sampling locations. Concentrations of chromium ranged from 1.0 mg/kg to 780 mg/kg and exceeded the criteria level (448 mg/kg) at sampling location CC-(3,7) 1'-2' (780 mg/kg). Iron concentrations in soil ranged from 3.36 mg/kg to 120,000 mg/kg, exceeding the criteria level (100,000 mg/kg) only at sampling location CC-(3,7) 1'-2' (120,000 mg/kg).

4.2.2 VOCs and BTEX in Soil

Seventeen surface and subsurface soil samples were analyzed for VOCs or BTEX. The results from these analyses in site soils are presented in Table 4-4 and Figure 4-1. Results indicate that VOCs or BTEX were detected at concentrations that exceeded the criteria levels at six sampling locations [CC-(0,0) 1'-2', CC-(0,1) 1'-2', CC-(0,2) 1'-2', CC-(0,3) 1'-2', CC-(1,5) 1'-2', and CC-(2,4) 1'-2']. Individual VOCs that exceeded criteria levels on site were: ethylbenzene, total xylenes, toluene and 1,2-dichloropropane. Ethylbenzene concentrations in soil samples ranged from undetectable to 970,000 ug/kg. Those concentrations of ethylbenzene that exceeded the criteria level (230,000 ug/kg) were the following:

- CC-(1,5) 1'-2' (970,000 ug/kg);
- CC-(0,1) 1'-2' (750,000 ug/kg);
- CC-(0,2) 1'-2' (620,000 ug/kg); and
- CC-(0,3) 1'-2' (390,000 ug/kg).

Total xylenes concentrations in soil samples ranged from undetectable to 4,200,000 ug/kg. At the following five sampling locations, concentrations of total xylenes were detected at levels greater than the criteria level (210,000 ug/kg):

- CC-(0,1) 1'-2' (4,200,000 ug/kg);
- CC-(1,5) 1'-2' (3,200,000 ug/kg);
- CC-(0,2) 1'-2' (2,300,000 ug/kg);
- CC-(0,3) 1'-2' (1,700,000 ug/kg); and
- CC-(0,0) 1'-2' (240,000 ug/kg).

Toluene concentrations in site soils ranged from undetectable to 8,400,000 ug/kg. Concentrations of toluene exceeded the criteria level (520,000 ug/kg) at the following three sampling locations:

- CC-(0,1) 1'-2' (8,400,000 ug/kg);
- CC-(0,2) 1'-2' (3,600,000 ug/kg); and
- CC-(1,5) 1'-2' (1,200,000 ug/kg).

Concentrations of 1,2-dichloropropane in site soils ranged from undetectable to 2,600 ug/kg. One sample, at location CC-(2,4) 1'-2' depth (2,600 ug/kg), exceeded the criteria level for 1,2-dichloropropane (800 ug/kg).

4.2.3 SVOCs in Soil

Ten surface and subsurface soil samples were analyzed for SVOCs. The results are presented in Table 4-5 and Appendix C. Criteria levels were not exceeded by any SVOCs in these samples. Three SVOCs were detected above method limits: 2-methylnaphthalene, bis(2-ethylhexyl)phthalate and naphthalene. The greatest concentrations of these SVOCs were detected in the following samples: CC-(1,7) 1'-2', (4,700 ug/kg of 2-methylnaphthalene), CC-(0,3) 1'-2' (14,000 ug/kg of bis(2-ethylhexyl)phthalate), and CC-(1,7) 1'-2' (8,300 ug/kg of naphthalene).

4.2.4 PCBs and Pesticides in Soil

Ten surface and subsurface soil samples were analyzed for PCBs and pesticides. PCB analytical results are displayed in Appendix C. No PCB compounds were detected in any of the samples. Pesticide results are displayed in Table 4-6. No pesticide compounds were detected above criteria levels in these samples. The pesticides at greatest concentrations in soil were found at the following site locations: CC-(0, 4) (220 ug/kg of 4,4-DDT), CC-(3, 5)(94 ug/kg of Chlordane), and CC-(2-9) 2'-4' (50 ug/kg of 4,4'-DDE).

4.3 SADA SOFTWARE USE FOR VISUALIZATION OF ON-SITE EXTENT OF CONTAMINATION AND HUMAN HEALTH RISK

Spatial Analysis and Decision Assistance (SADA) software was used to further illustrate the extent of contamination as shown in Figure 4-1 and visually assess the risk to human health. The color-scaled, two-dimensional diagrams produced by the SADA software makes visualizing contamination

easier and is a useful tool for communicating analytical results to interested parties. Each SADA plot presented in Appendices E and F represents the area of the site with overlays of the concentration of specific parameters (Appendix E) and an estimate of the human health risk that is based on contaminant concentrations (Appendix F). Concentrations of contaminants in surface soil or sediment were used to generate each plot, except in the cases where a subsurface sample had a greater concentration of contaminant than the surface soil at the same location. In these cases, the highest concentration of the contaminant at depth was used. For samples that had concentrations below the method limits of detection, one half of the detection limit was used to represent the sample concentration, with the exception of benzene. Undetectable levels of benzene was assumed to have a concentration of zero.

Extent of contamination figures generated by SADA software are presented in Appendix E for ethylbenzene, m-p xylene, o-xylene, benzene, toluene and lead. It should be noted that the color scale for each figure denotes relative concentration of the contaminant and does not necessarily reflect the concentration of the contaminant relative to criteria levels or remediation goals. Ethylbenzene, m-p xylene, benzene, toluene and lead concentrations are clearly shown in the SADA plots to be greater in the southwest corner of the site than other areas of the site. Likewise, o-xylene is shown to be relatively high in the east corner of the site and areas of relatively high lead concentrations are evident in the northwest and east corners of the site. Similar patterns are found in Figure 4-1 where analytical data is plotted directly onto site maps.

The risk to human health due to the presence of ethylbenzene, m-xylene, o-xylene, benzene, and toluene on site can be visualized with the assistance of the SADA plots in Appendix F. The plots assume future unrestricted industrial land use, and that the contaminants pose an ingestion hazard. Note that the color scale refers to an index number that corresponds to the amount of risk present at locations around the site. Generally, for compounds which are potential carcinogens, a risk is present if the index is greater than 1×10^{-6} ; an acceptable risk is described with an index between 1×10^{-6} and 1×10^{-4} ; and a high level risk is described with an index greater than 1×10^{-4} . Benzene is

a potential carcinogen. The other contaminants under investigation, ethylbenzene, m-xylene, o-xylene, and toluene are non-carcinogenic and are therefore only considered a health risk if the risk index is greater than one.

The figures in Appendix F display the same trends as the figures in Appendix E that present the concentration of contaminants on site. That is, where the concentration of each contaminant is greater, the index of risk is greater. The risk to human health associated with ethylbenzene, m-p xylenes, and toluene on site is concentrated in the southwest corner where the risk indices that range from 1.9 to 9.5 for ethylbenzene, from 0.41 to 2.1 for m-p xylenes, and from 8.0 to 41 for toluene indicate that there is a risk to human health based on the concentration of these compounds on site. The risk indices for o-xylene that are present in the east corner of the site fall below the level that is considered to be a risk to human health, 1.765×10^{-3} to 8.81×10^{-3} . SADA interpretation of benzene concentrations on site pose no apparent risk to human health as no benzene index is greater than 1×10^{-6} site-wide.

4.4 GEOTECHNICAL SAMPLING

A total of five individual 3-inch diameter Shelby Tube (ST) soil samples were collected at the site. The ST soil samples were collected from 0 to 4 feet total depth. The ST soil samples were analyzed for percent moisture, percent organic content (%), and percentage of grain size distribution. The Atterburg limits analysis was not performed by the laboratory due to the soil type. The analytical results of the five individual ST soil samples were analyzed by CGC, Inc. of Madison, Wisconsin.

The analytical results indicated soils composed primarily of brown, fine-grained sands. The sand content of the soil samples ranged from 80 to 95.9% in four of the five ST soil samples collected. The ST soil sample collected at sampling location CC-(1, 6) contained a higher percentage of silt at 50.4% total silt. The moisture content of the sand was between 19.1 and 25.2%. The total organic content was between 1.2 and 3.9 %.

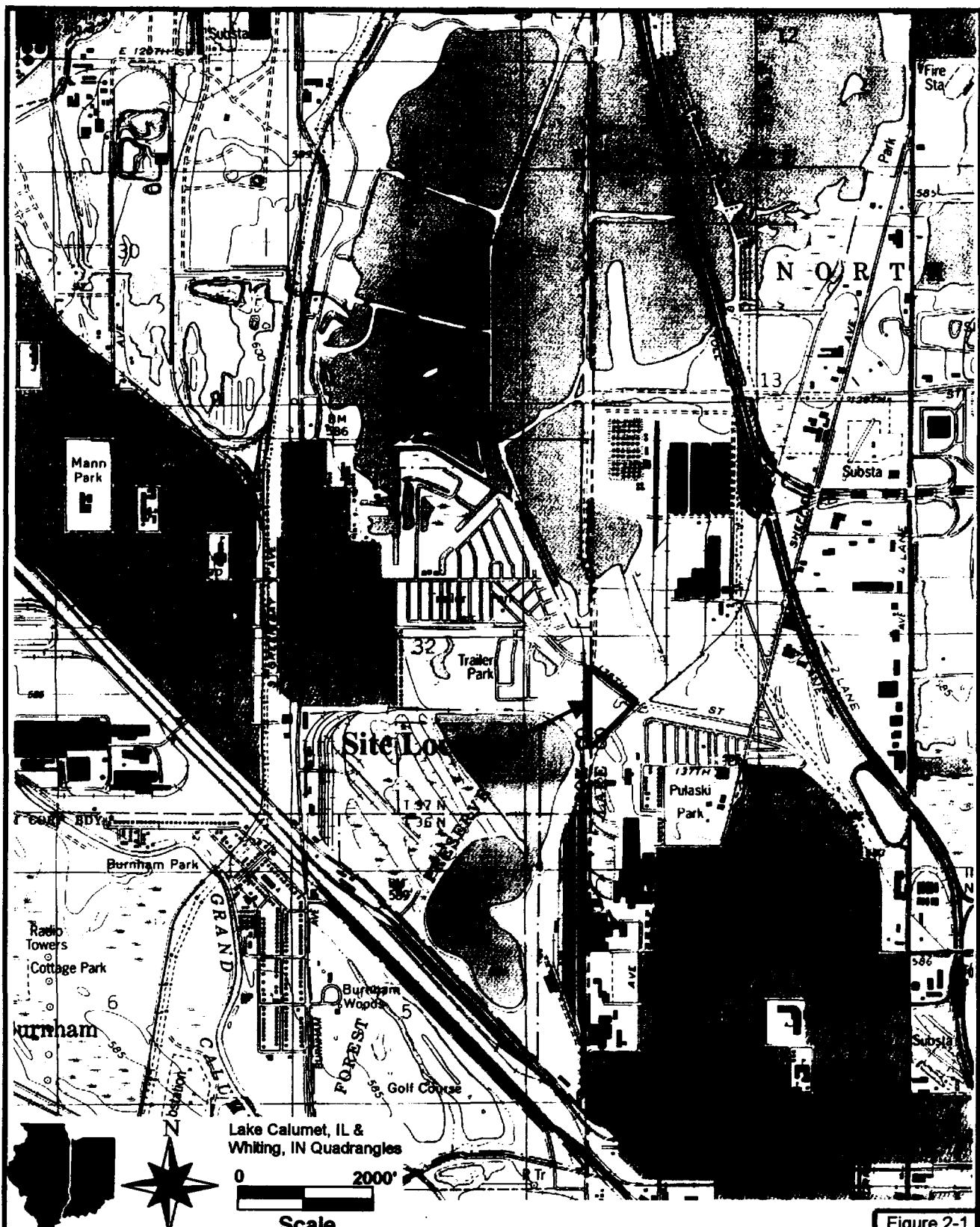


Figure 2-1



750 E. Bunker Ct.
Suite 500
Vernon Hills, Illinois
60061

TOPOGRAPHICAL SITE LOCATION MAP

CALUMET CONTAINER SITE

Hammond, Lake County, Indiana and Cook County, Illinois



Vermon Hills, Illinois
Suite 500
60061

U.S. EPA

Chicago, Illinois

CALUMET CONTAINER SITE
SITE MAP
U.S. EPA

Chicago, Illinois

FIGURE 2-2

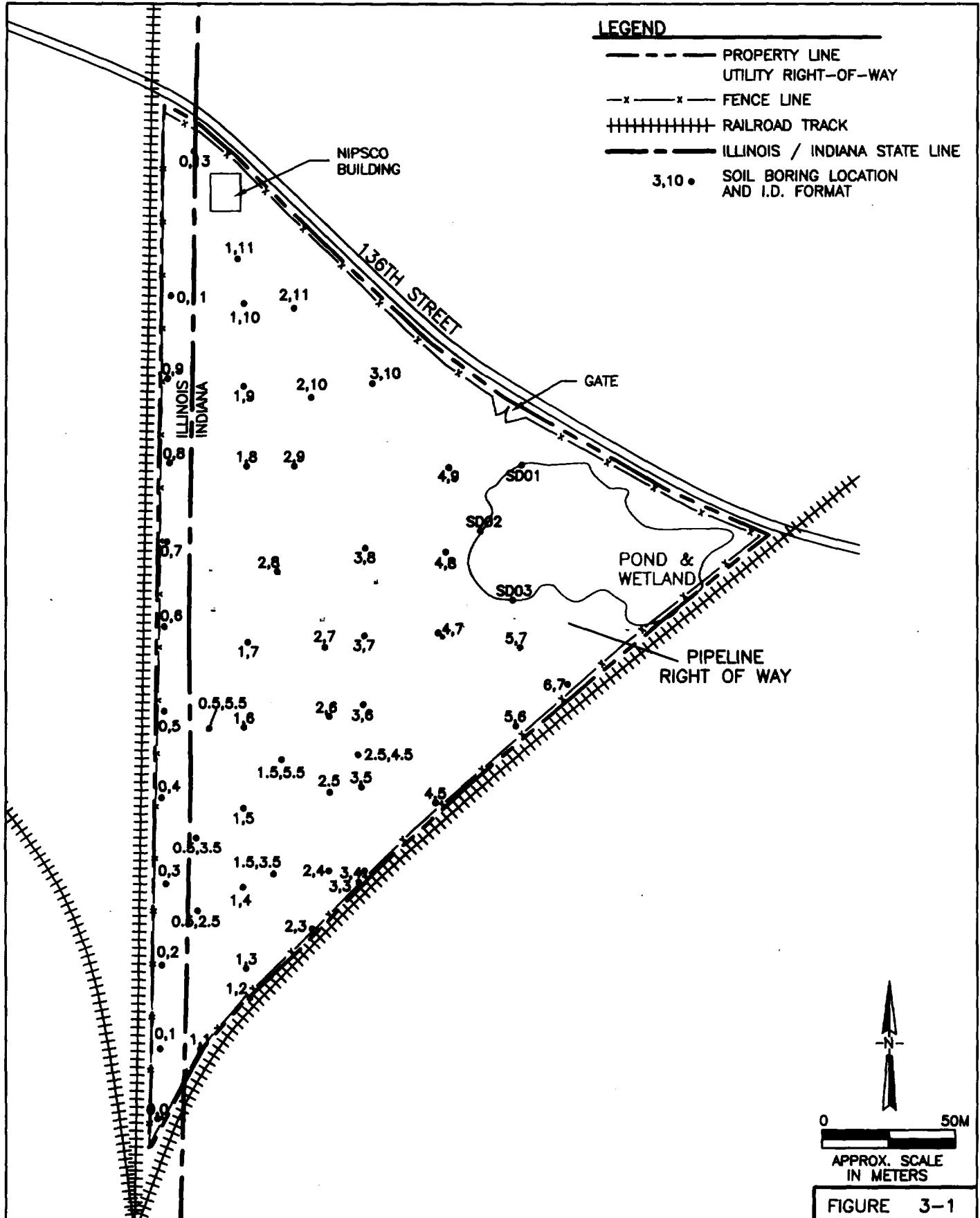


FIGURE 3-1

CC-(1,9) - DEPTH (3-4 FT.)
LEAD 13,000 (mg/kg)
CADMUM 21,000 (mg/kg)

CC-(1,8) - DEPTH (3-4 FT.)
CADMUM 2,000 (mg/kg)

CC-(1,5,5,5) - DEPTH (1 FT.)
LEAD (XRF) 1,840 (ppm)

CC-(0,5,5) - DEPTH (3.5 FT.)
LEAD (XRF) 1,429 (ppm)

CC-(1,5) - DEPTH (1 FT.)
LEAD (XRF) 1,969 (ppm)

CC-(1,5) - DEPTH (1-2 FT.)
ETHYLBENZENE 970,000 (ug/kg)
TOLUENE 1,200,000 (ug/kg)
XYLENES (TOTAL) 3,200,000 (ug/kg)

CC-(0,4) - DEPTH (3 FT.)
LEAD (XRF) 1,360 (ppm)

CC-(0,5,3,5) - DEPTH (1 FT.)
LEAD (XRF) 1,840 (ppm)
CC-(0,5,3,5) - DEPTH (3 FT.)
LEAD (XRF) 7,974 (ppm)

CC-(0,3) - DEPTH (1-2 FT.)
LEAD (XRF) 968 (ppm)
ETHYLBENZENE 390,000 (ug/kg)
XYLENES (TOTAL) 1,700,000 (ug/kg)

CC-(0,3) - DEPTH (3 FT.)
LEAD (XRF) 1300 (ppm)

CC-(0,5,2,5) - DEPTH (1-2 FT.)
LEAD (XRF) 6,520 (mg/kg)

CC-(0,5,2,5) - DEPTH (2 FT.)
LEAD (XRF) 8,057 (ppm)

CC-(0,2) - DEPTH (1-2 FT.)
ETHYLBENZENE 620,000 (ug/kg)
TOLUENE 3,800,000 (ug/kg)
XYLENES (TOTAL) 2,300,000 (ug/kg)

CC-(0,1) - DEPTH (1-2 FT.)
ETHYLBENZENE 750,000 (ug/kg)
TOLUENE 8,400,000 (ug/kg)

CC-(0,1) - DEPTH (1.5 FT.)
LEAD (XRF) 930 (ppm)

CC-(0,0) - DEPTH (1-2 FT.)
XYLENES (TOTAL) 240,000 (ug/kg)

CC-(0,0) - DEPTH (2 FT.)
LEAD (XRF) 4,038 (ppm)

CC-(3,10) - DEPTH (0-2 FT.)
ARSENIC 280 (mg/kg)
CADMUM 27,000 (mg/kg)
LEAD 4,300 (mg/kg)

CC-(2,8) - DEPTH (2-4 FT.)
LEAD 1,400 (mg/kg)
CADMUM 6,300 (mg/kg)
ARSENIC 45 (mg/kg)

CC-(4,9) - DEPTH (1.5 FT.)
LEAD (XRF) 1,469 (ppm)

CC-(3,8) - DEPTH (0-1 FT.)
LEAD 805 (mg/kg)

CC-(3,7) - DEPTH (1-2 FT.)
ARSENIC 84.9 (mg/kg)
CADMUM 780 (mg/kg)
IRON 120,000 (mg/kg)

CC-(5,7) - DEPTH (2 FT.)
LEAD (XRF) 6,848 (ppm)

CC-(6,7) - DEPTH (3 FT.)
LEAD (XRF) 1,659 (ppm)

CC-(6,7) - DEPTH (3-4 FT.)
LEAD 1,320 (mg/kg)

CC-(1,5,3,5) - DEPTH (1.5 FT.)
LEAD (XRF) 2,689 (ppm)

CC-(2,4) - DEPTH (1 FT.)
LEAD (XRF) 1,189 (ppm)

CC-(2,4) - DEPTH (1-2 FT.)
1,2-DICHLOROPROPANE 2,600 (ug/kg)

CC-(2,4) - DEPTH (3 FT.)
LEAD (XRF) 4,649 (ppm)

CC-(2,3) - DEPTH (3 FT.)
LEAD (XRF) 1,400 (ppm)

CC-(1,3) - DEPTH (1 FT.)
LEAD (XRF) 841 (ppm)

CC-(1,2) - DEPTH (2 FT.)
LEAD (XRF) 4,288 (ppm)

CC-(1,2) - DEPTH (2-3 FT.)
LEAD 1,490 (mg/kg)

CONSTITUENT	SCREENING LEVEL
ARSENIC	20 (mg/kg) OR (ppm)
CADMUM	780 (mg/kg) OR (ppm)
LEAD	800 (mg/kg) OR (ppm)
CHROMIUM	448 (mg/kg)
IRON	100,000 (mg/kg)
1,2,- DICHLOROPROPANE	800 (ug/kg)
ETHYLBENZENE	230,000 (ug/kg)
M/P-XYLENE	210,000 (ug/kg)
TOLUENE	520,000 (ug/kg)
XYLENES (TOTAL)	210,000 (ug/kg)

LEGEND

- PROPERTY LINE
- Utility Right-of-Way
- x-x- FENCE LINE
- ||||| RAILROAD TRACK
- Illinois / Indiana State Line
- 3,10 • SOIL BORING LOCATION AND I.D. FORMAT
</

WESTON
DESIGNERS/CONSULTANTS

MARSHES

750 E. Bunker Ct.
Suite 500
Vernon Hills, Illinois
60061

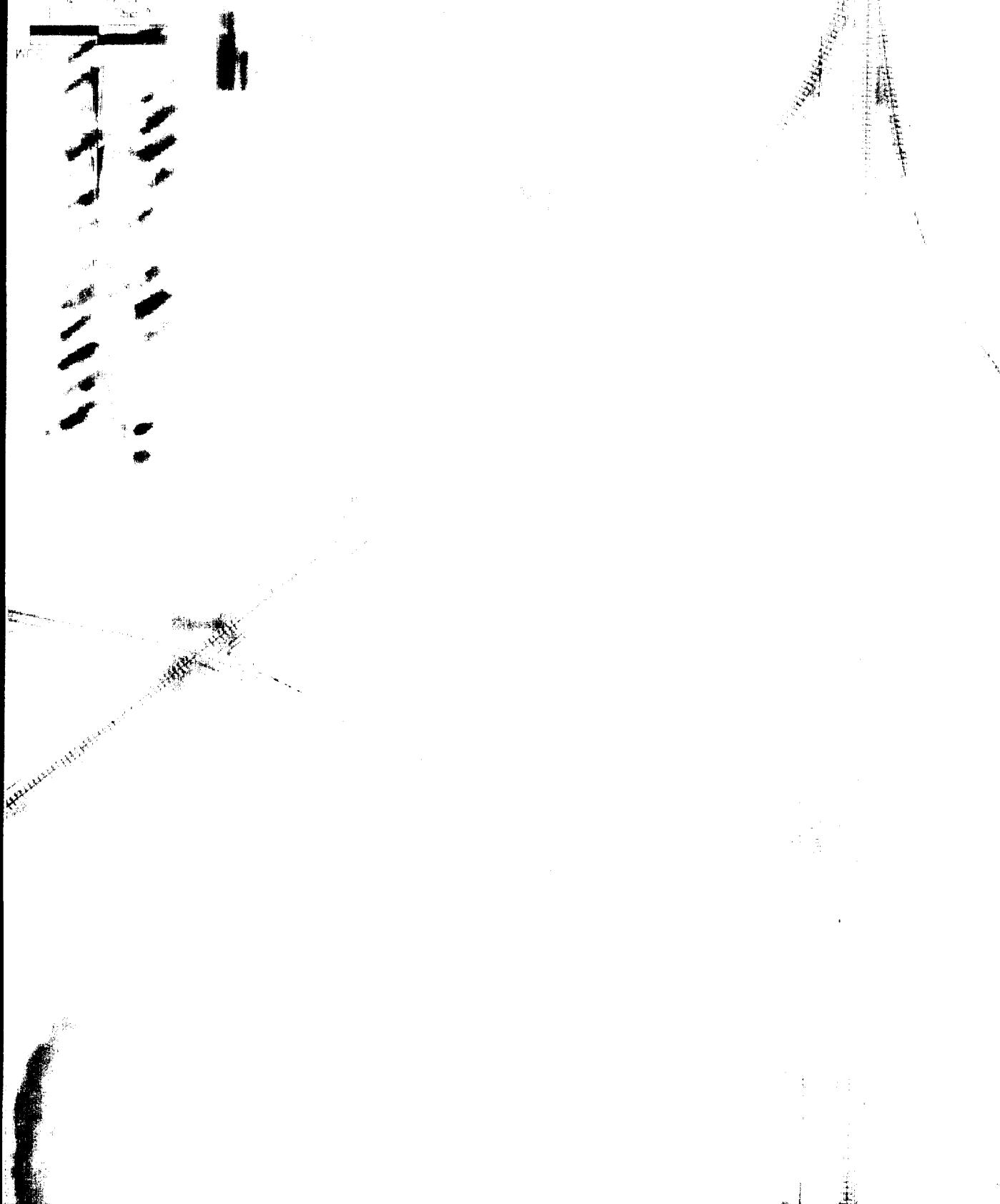
U.S. EPA

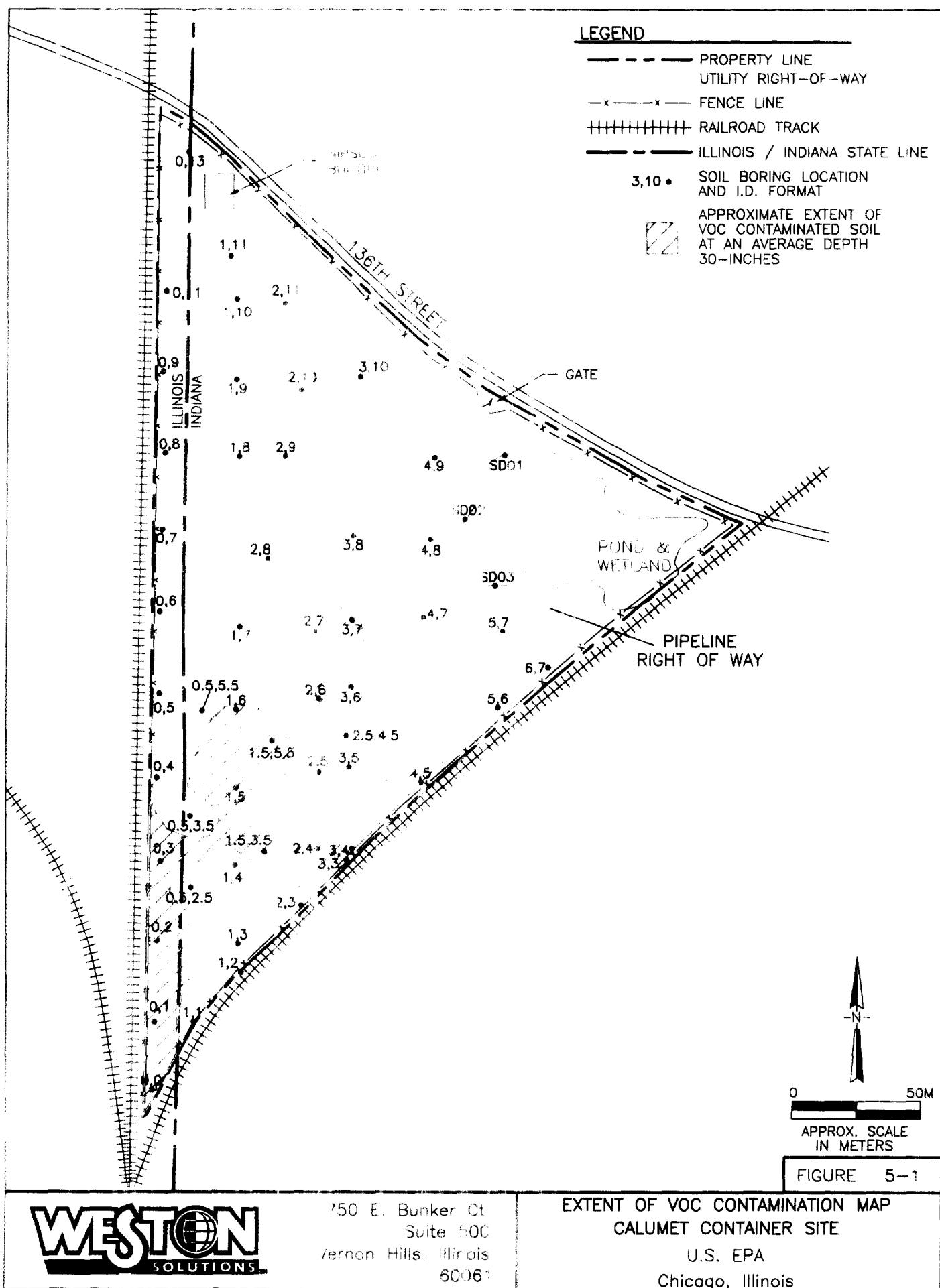
CALUMET CONTAINER SITE

WETLAND DELINEATION MAP

Chicago, Illinois

FIGURE 4-2





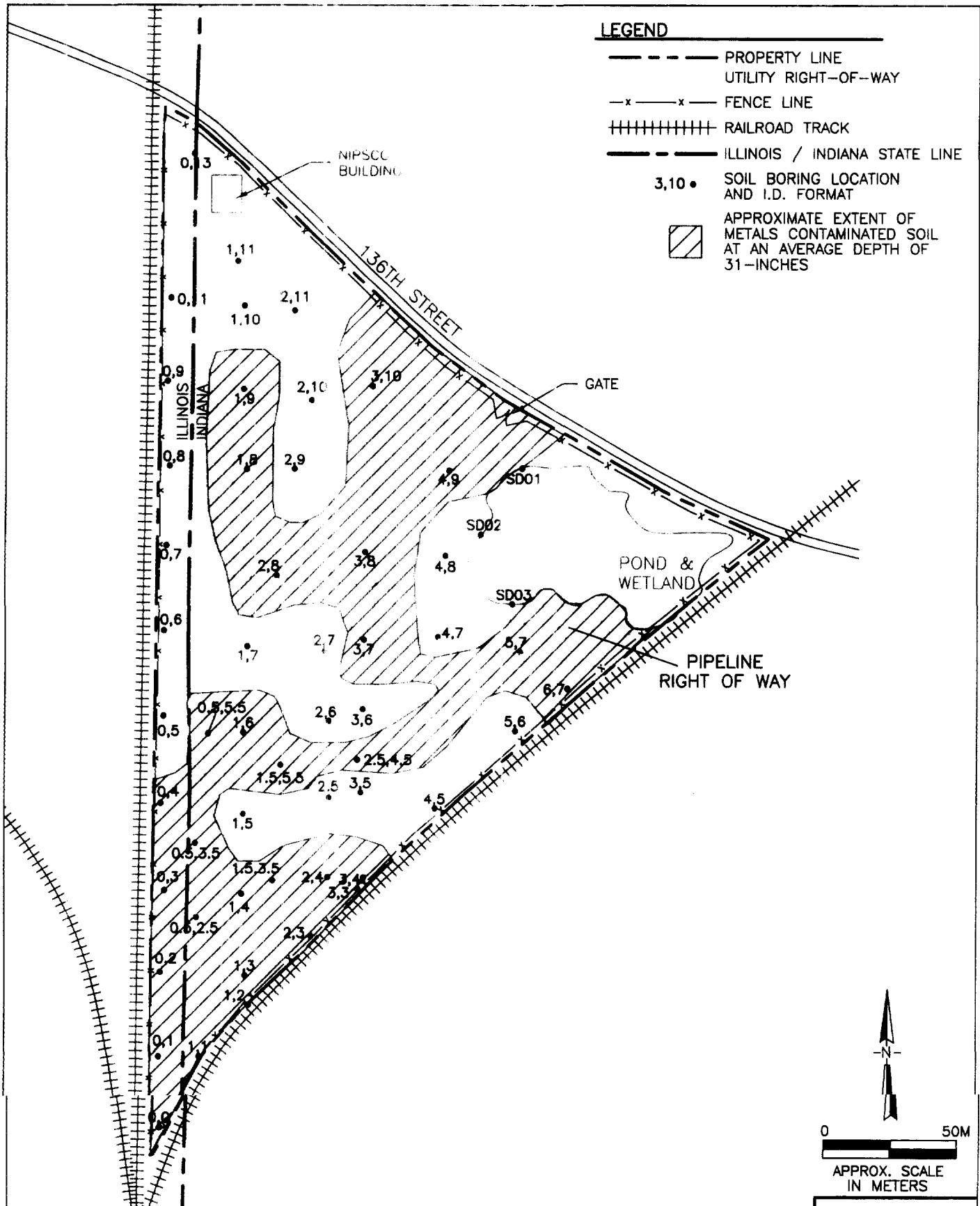
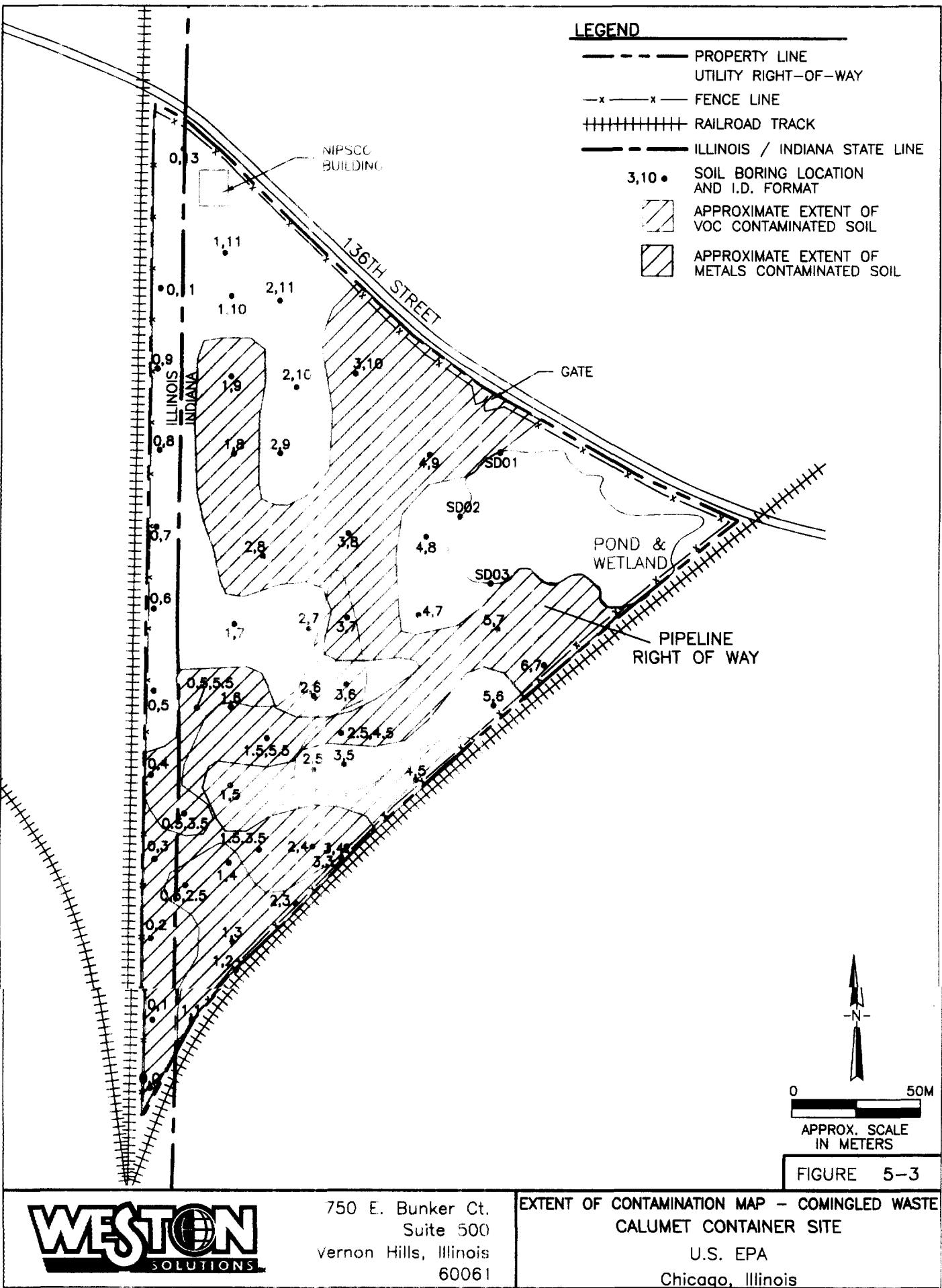


FIGURE 5-2



750 E. Bunker Ct.
Suite 500
Vernon Hills, Illinois
60061

EXTENT OF METALS CONTAMINATION MAP
CALUMET CONTAINER SITE
U.S. EPA
Chicago, Illinois



TABLES

Table 4 - 1

Soil XRF Lead Screening Results
Calumet Container Site, Hammond, IN

Boring Location	Depth (feet)	Lead Result (ppm)	Precision +/-
0, 0	0.5	4,038	200
0, 0	3.0	<LOD	56.25
0, 1	1.0	930.4	81
0, 1	2.0	<LOD	62.1
0, 2	1.0	512.8	64.6
0, 3	1.0	966.4	89.9
0, 3	2.0	1,300	130
0, 4	0.5	1,140	180
0, 4	2.0	1,360	100
0, 5	0.5	561.6	63.8
0, 6	0.5	136.4	47.4
0, 6	3.0	<LOD	42.15
0, 7	1.0	<LOD	74.55
0, 8	0.0	56.8	37.8
0, 8	2.0	<LOD	40.5
0, 8	4.0	<LOD	55.5
0, 9	0.0	78.2	32.2
0, 9	2.0	<LOD	50.25
0, 9	4.0	<LOD	46.35
0, 10	0.0	<LOD	52.95
0, 10	1.0	<LOD	49.8
0, 10	3.0	<LOD	47.4
1, 1	0.5	518.8	55.8
1, 2	0.0	793.2	91.9
1, 2	1.5	<LOD	122.7
1, 2	2	4,288	260
1, 2	3	<LOD	48.3
2, 9	0.5	177.9	65.4
2, 9	3	<LOD	66.3
2, 10	1	80.2	45.6
2, 10	2	150.8	51.6
2, 10	4	68	40.9
2, 11	0	82.9	41.6
2, 11	1.5	<LOD	63.15
2, 11	2.5	<LOD	50.55
2, 11	4	<LOD	79.65
3, 3	0.5	1169.6	120

Boring Location	Depth (feet)	Lead Result (ppm)	Precision +/-
1, 7	1	121.9	68.6
1, 7	3	<LOD	40.35
1, 8	0.5	95.1	38.8
1, 8	2.5	51.2	32.2
1, 8	4	<LOD	46.95
1, 9	0	140.3	43.6
1, 9	1.5	146.6	60.2
1, 9	3.5	<LOD	51
1, 10	0	<LOD	51.75
1, 10	2	<LOD	54.75
1, 10	4	<LOD	40.05
2, 3	1	666.4	77.9
2, 3	2	1,400	130
2, 4	0.5	1189.6	150
2, 4	2	4649.6	290
2, 5	0.5	410.8	64.2
2, 5	2	177.9	69.5
2, 6	0.5	172.9	48
2, 6	2	42	27.5
2, 8	0	749.2	85.7
2, 8	1	243.4	69.2
2, 8	3	<LOD	54.6
2, 8	4	70.7	41.9
4, 9	2	265.6	76.2
5, 6	0	232.6	48.4
5, 6	1	139.3	39.3
5, 6	3.5	<LOD	39.9
5, 7	1	6848	240
5, 7	2.5	<LOD	43.05
6, 7	0.5	<LOD	43.2
6, 7	1	1659.2	130
6, 7	2.5	414	56.9
0.5, 2.5	0	660.8	83.3
0.5, 2.5	2	8057.6	400
0.5, 2.5	3	<LOD	60.3
0.5, 2.5	5	<LOD	57.6
0.5, 2.5	6.5	<LOD	48.3

Table 4 - 1

Soil XRF Lead Screening Results
Calumet Container Site, Hammond, IN

Boring Location	Depth (feet)	Lead Result (ppm)	Precision +/-
3, 3	3	<LOD	54.3
3, 4	1	58	38.5
3, 4	2.5	<LOD	54.75
3, 5	0.5	177.9	69.5
3, 5	2.5	678.8	68.8
3, 6	0.5	<LOD	85.35
3, 6	3	<LOD	58.5
3, 7	1	157.8	90.5
3, 7	3	<LOD	49.05
3, 8	0.5	752	74.4
3, 8	2.5	<LOD	51.75
3, 9	1	92.9	52.2
3, 9	3	<LOD	42.6
3, 10	0	134.1	56.2
3, 10	1	103.4	42.8
3, 10	3	180.7	61.8
3, 10	4	<LOD	56.1
4, 5	0.5	290.2	58.5
4, 7	1	<LOD	70.65
4, 7	2	<LOD	52.65
4, 8	1	130	60.3
4, 8	3	<LOD	56.85
4, 9	1	1469.6	120
1, 3	0.5	841.6	80.2
1, 3	2	86.6	41.4
1, 4	1	1868.8	94.7
1, 4	2	<LOD	60.45
1, 5	1	1969.6	120

Boring Location	Depth (feet)	Lead Result (ppm)	Precision +/-
0.5, 2.5	9	<LOD	56.7
0.5, 3.5	0	2560	200
0.5, 3.5	1	1840	150
0.5, 3.5	2.5	7974.4	490
0.5, 5	0.5	795.2	84.3
0.5, 5	1.5	1429.6	170
0.5, 5	2.5	601.6	92.9
0.5, 5	4	<LOD	55.2
1.5, 3.5	0	1960	140
1.5, 3.5	1	2689.6	210
1.5, 3.5	1.5	<LOD	51.45
1.5, 3.5	3	<LOD	51.75
1.5, 5.5	0	1840	140
1.5, 5.5	1.5	291.8	78.8
1.5, 5.5	3	<LOD	58.65
2.5, 4.5	0	972	98.4
2.5, 4.5	1	<LOD	52.2
2.5, 4.5	3	<LOD	53.4
SD-1	0.5	<LOD	50.55
SD-1	2	<LOD	43.5
SD-2	1	<LOD	51.9
SD-2	2	<LOD	41.85
SD-3	1	<LOD	46.35
SD-3	3	<LOD	49.8

ppm= parts per million

<LOD= Less than limit of detection

Table 4 - 2

XRF/Laboratory Confirmation Sampling Lead Analysis Results
 Calumet Container Site, Hammond, IN

Sample ID	CC (SD-02)	CC (0,10)	CC (0,10)	CC (0.5,2.5)	CC (1,2)	CC (1,8)	CC (1,9)	CC (1,9)
Sample Type	sediment	soil	soil	soil	soil	soil	soil	soil
Date Sampled	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002
Depth	(0'-1')	(3'-4')	(3'-4')DUP	(1'-2')	(2-3')	(3'-4')	(3'-4')	(3'-4')DUP
Analysis								
Lead (mg/kg)	47.7	2.8	3.15	6,520	1,490.00	680	13,000	13,000
XRF Reading (ppm, mg/kg)	< LOD	< LOD	< LOD	8057.6	4288.0	51.2	361.2	361.2
XRF Precision	N.A.	N.A.	N.A.	400.0	260.0	32.2	68.8	68.8
XRF Sample Number	5	29	29	60	57	43	21	21
Relative Percent Difference	N.A.	N.A.	N.A.	11	48	86	95	95

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N.A. = Not applicable

mg/kg = milligrams per kilogram = parts per million (ppm)

<LOD= Less than level of deduction

Table 4 - 2

XRF/Laboratory Confirmation Sampling Lead Analysis Results
 Calumet Container Site, Hammond, IN

Sample ID	CC (2,8)	CC (2,8)	CC (3-7)	CC (3-8)	CC (3,10)	CC (4,7)	CC (5,6)	CC (6,7)
Sample Type	soil	soil	soil	soil	soil	soil	soil	soil
Date Sampled	5/20/2002	5/20/2002	5/1/2002	5/1/2002	5/20/2002	5/1/2002	5/20/2002	5/20/2002
Depth	(0-6")	(2'-4')	1-2'	0-1'	(0-2')	1-2'	(0-6")	(3'-4')
Analysis								
Lead (mg/kg)	155	1,400	133	805	4,300	30.5	280	1,320
XRF Reading (ppm, mg/kg)	749.2	< LOD	157.8	752.0	134.1	< LOD	139.3	1659
XRF Precision	85.7	N.A.	90.5	74.4	56.2	N.A.	39.3	130
XRF Sample Number	38	40	53	61	47	51	15	12
Relative Percent Difference	66	N.A.	9	3	94	N.A.	34	11

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N.A. = Not applicable

mg/kg = milligrams per kilogram = parts per million (ppm)

<LOD= Less than level of deduction

Table 4 - 3

Surface and Subsurface Soil and Sediment Lead and TAL Metals Sampling Results
 Calumet Container Site, Hammond, IN

Sample ID	CC (SD-02)	CC (0,10)	CC (0,10)	CC (0.5,2.5)	CC (1,2)	CC (1,8)	CC (1,9)	Screening Level Industrial		
Sample Type	sediment	soil	soil	soil	soil	soil	soil	Region IX ^a	RISC ^b	TACO ^c
Date Sampled	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002	5/20/2002	Region IX ^a	RISC ^b	TACO ^c
Depth	0-1'	3'-4'	3'-4' DUP	1'-2'	2-3'	3'-4'	3'-4'	Region IX ^a	RISC ^b	TACO ^c
Chemical Name								Region IX ^a	RISC ^b	TACO ^c
Aluminum (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	3.90 U	3.90 U	100,000	N.L.	N.L.
Antimony (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	4.36	2.11	818	620	820 ^e
Arsenic (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	14	3.90	439	20	1,200 ^d
Banum (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	0.33 U	0.33 U	100,000	98,000	N.L.
Beryllium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	0.33 U	0.33 U	2,240	2,900	2,100 ^d
Cadmium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	2,000	21,000	809	780	2,000 ^e
Calcium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	3.10	2.70	N.L.	N.L.	N.L.
Chromium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	1.00	1.50	448	N.L.	420^d
Cobalt (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	4.80	2.20	100,000	N.L.	120,000 ^e
Copper (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	2,800	2,000	75,908	57,000	82,000 ^e
Iron (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	5.85	3.73	100,000	N.L.	N.L.
Lead (mg/kg)	47.7	2.8	3.15	6,520	1,490	680	13,000	750	1,300	400^e
Magnesium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	20	91	N.L.	N.L.	N.L.
Manganese (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	0.03 U	0.03 U	32,300	N.L.	91,000 ^d
Mercury (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	3.3	2.8	613	150	610 ^e
Nickel (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	120	130	40,877	31,000	21,000^d
Potassium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	0.46 U	0.46 U	N.L.	N.L.	N.L.
Silver (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	66 U	75	10,220	7,800	10,000 ^e
Sodium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	0.33 U	0.33 U	N.L.	N.L.	N.L.
Thallium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	4.3	2.9	135	140	160 ^e
Vanadium (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	16	10	14,308	N.L.	14,000^e
Zinc (mg/kg)	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	100,000	470,000	610,000 ^e

Lead results compared to U.S. EPA Region V PRGs, 800 mg/kg.

^a U.S. EPA Region IX Industrial PRGs for Combined Exposure Pathways

^b Indiana RISC closure levels, direct contact soils

^c Illinois EPA Tiered Approach to Corrective Action Objectives (TACO)

^d TACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Inhalation

^e TACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Ingestion

Bold and highlighted sample concentrations are higher than the most conservative industrial criteria level for that compound

Highlighted criteria levels are the most conservative of those listed for industrial soils

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N.L. = Not listed

N.A. = Not analyzed

mg kg = milligrams per kilogram

Table 4 - 3

Surface and Subsurface Soil and Sediment Lead and TAL Metals Sampling Results
 Calumet Container Site, Hammond, IN

Sample ID	CC (1,9)	CC (2,8)	CC (2,8)	CC (3-7)	CC (3-8)	CC (3,10)	CC (4,7)	CC (5,6)	CC (6,7)	Screening Level		
Sample Type	soil	soil	soil	soil	soil	soil	soil	soil	soil	Industrial		
Date Sampled	5/20/2002	5/20/2002	5/20/2002	5/1/2002	5/1/2002	5/20/2002	5/1/2002	5/20/2002	5/20/2002			
Depth	3'-4'DUP	0-6"	2'-4'	1-2'	0-1'	0-2'	1-2'	0-6"	3'-4'			
Chemical Name										Region IX ^a	RISC ^b	TACO ^c
Aluminum (mg/kg)	4 U	N.A.	4 U	5,600	2,000	4 U	2,200	N.A.	5,200	100,000	N.L.	N.L.
Antimony (mg/kg)	2.06 U	N.A.	21.50	45 U	4.6 U	13.50	4.6 U	N.A.	8.6	818	620	820 ^e
Arsenic (mg/kg)	3.80 U	N.A.	45	64.9	14.4	280	6.5	N.A.	6.86	439	20	1,200 ^d
Barium (mg/kg)	0.33 U	N.A.	0.33 U	71	160	0.38	28	N.A.	610	100,000	98,000	N.L.
Beryllium (mg/kg)	0.33 U	N.A.	0.66	3.75 U	0.345	0.64	0.4 U	N.A.	1.06	2,240	2,900	2,100 ^d
Cadmium (mg/kg)	22,000	N.A.	6,300	3.75 U	2.64	27,000	0.4 U	N.A.	4.12	809	780	2,000 ^e
Calcium (mg/kg)	2.90	N.A.	4.50	93,000	88,000	20	12,000	N.A.	32000	N.L.	N.L.	N.L.
Chromium (mg/kg)	1.40	N.A.	2.10	780	170	3.50	9.4	N.A.	210	448	N.L.	420^d
Cobalt (mg/kg)	2.40	N.A.	37	6.7	6.6	27	1.9	N.A.	9.4	100,000	N.L.	120,000 ^e
Copper (mg/kg)	2,100	N.A.	12,000	28	140	19,000	15.0	N.A.	190	75,908	57,000	82,000 ^e
Iron (mg/kg)	3.36	N.A.	51.8	120,000	19,000	161	8,100	N.A.	8,200	100,000	N.L.	N.L.
Lead (mg/kg)	13,000	155	1,400	133	805	4,300	30.5	280	1,320	750	1,300	400^e
Magnesium (mg/kg)	93	N.A.	91	37,000	49,000	1,300	5,100	N.A.	9400	N.L.	N.L.	N.L.
Manganese (mg/kg)	0.03 U	N.A.	0.06	25,000	1,800	0.11	450	N.A.	840	32,300	N.L.	91,000 ^d
Mercury (mg/kg)	2.9	N.A.	9	0.3	0.96	14	0.08	N.A.	.58	613	150	610 ^e
Nickel (mg/kg)	130	N.A.	160	15 U	12	350	4.9	N.A.	9.8	40,877	31,000	21,000^d
Potassium (mg/kg)	0.47 U	N.A.	0.56	750 U	440	0.47 U	220	N.A.	640	N.L.	N.L.	N.L.
Silver (mg/kg)	72	N.A.	66 U	3.7 U	1.2	190	0.38 U	N.A.	1.6	10,220	7,800	10,000 ^e
Sodium (mg/kg)	0.33 U	N.A.	1.09	750 U	160	2.16	76.0 U	N.A.	400	N.L.	N.L.	N.L.
Thallium (mg/kg)	2.8	N.A.	7.1	12.9	1.29	13	0.609	N.A.	0.331 U	135	140	160 ^e
Vanadium (mg/kg)	9.80	N.A.	160	240	38	530	7.0	N.A.	10	14,308	N.L.	14,000^e
Zinc (mg/kg)	N.A.	N.A.	N.A.	38	260	N.A.	62.0	N.A.	680	100,000	470,000	610,000 ^e

Lead results compared to U.S. EPA Region V PRG, 800 mg/kg.

^aU.S. EPA Region IX Industrial PRGs for Combined Exposure Pathways

^b Indiana RISC closure levels, direct contact soils

^c Illinois EPA Tiered Approach to Corrective Action Objectives (TACO)

^dTACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Inhalation

^eTACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Ingestion

Bold and highlighted sample concentrations are higher than the most conservative industrial criteria level for that compound

Highlighted criteria levels are the most conservative of those listed for industrial soils

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N.L. = Not listed

N.A. = Not analyzed

mg/kg = milligrams per kilogram

Table 4 -4

Surface and Subsurface Soil Volatile Organic Compounds Sampling Results
Calumet Container Site, Hammond, IN

Sample ID	CC-(2,3)	CC-(2,4)	CC-(2,8)	CC-(3,5)	CC-(3,10)	CC-(5,7)	CC-(6,7)	Screening Level		
Sample Type	soil	soil	soil	soil	soil	soil	soil	Industrial		
Depth	1'-2'	1'-2'	2'-4'	1'-2'	0'-2'	1'-2'	3'-4'			
Date Sampled	4/30/2002	5/1/2002	5/20/2002	5/1/2002	5/21/2002	5/1/2002	5/20/2002			
Chemical Name								Region IX ^a	RISC ^b	TACO ^c
1,2,4-Trichlorobenzene (ug/kg)	N.A.	8,000 J	170 U	16 U	7 U	16 UJ	1,300 U	3,000,000	4,900,000	3,200,000
1,2,4-Trimethylbenzene (ug/kg)	N.A.	410 U	670	19	17	88	18,000	170,000	N.L.	N.L.
1,2-Dichloropropane (ug/kg)	2,700 U	2,600	170 U	16 U	7 U	16 U	1,300 U	800	7,200	23,000
1,3,5-Trimethylbenzene (ug/kg)	N.A.	410 U	200	16 U	32	24	5,600	69,800	N.L.	N.L.
Acetone (ug/kg)	27,000 U	2,000 U	870 U	80 U	180	80 U	6,500 U	6,220,000	5,600,000	100,000,000
Benzene (ug/kg)	2,700 U	410 U	170 U	16 U	7 U	16 U	1,300 U	1,500	13,000	1,600
2-Butanone (ug/kg)	27,000 U	2,000 U	870 U	80 U	140	80 U	6,500 U	N.L.	N.L.	N.L.
Ethylbenzene (ug/kg)	21,000	1,600	550	51	7 U	200	14,000	230,000	6,800,000	400,000
Isopropylbenzene (Cumene) (ug/kg)	N.A.	410 U	170 U	16 U	7 U	16 U	1,100	522,000	N.L.	N.L.
m/p-xylene (total xylenes) (ug/kg)	66,000	7,600	2,200	180	71	640	57,000	210,000	6,200,000	320,000
Naphthalene (ug/kg)	N.A.	1,100 J	580	16 UJ	12	29 J	8,600	N.L.	8,000,000	270,000
n-Butylbenzene (ug/kg)	N.A.	920	220	16 U	7 U	16 U	2,400	240,000	N.L.	N.L.
n-Propylbenzene (ug/kg)	N.A.	700	170 U	16 U	7 U	16 U	2,000	240,000	N.L.	N.L.
o-xylene (ug/kg)	N.A.	3,400	740	48	52	210	18,000	N.L.	N.L.	410,000
p-isopropyltoluene	N.A.	510	170 U	16 U	7 U	16 U	1,300	N.L.	N.L.	N.L.
Styrene	2,700 U	410 U	170 U	16 U	7 U	16 U	1,300 U	1,700,000	16,000,000	1,500,000
Tetrachloroethene	2,700 U	410 U	170 U	16 U	7 U	16 U	1,300 U	N.L.	N.L.	N.L.
Toluene (ug/kg)	6,900	940	170 U	240	7 U	850	1,200	520,000	2,200,000	650,000

This table lists only compounds that were detected during analysis. See Appendix C for complete laboratory reports.

^a U.S. EPA Region IX Industrial PRGs for Combined Exposure Pathways

^b Indiana RISC closure levels, direct contact soils

^c Illinois EPA Tiered Approach to Corrective Action Objectives (TACO)

^d TACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Inhalation

Bold and highlighted sample concentrations are higher than the most conservative industrial criteria level for that compound

Highlighted screening levels are the most conservative of those listed for industrial soils

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N.L. = Not listed

N/A = Not Analyzed

ug/kg = micrograms per kilogram

Table 4 -5

Surface and Subsurface Soil Semi-Volatile Organic Compounds Sampling Results
 Calumet Container Site, Hammond, IN

Sample ID	CC-(0,3)	CC-(0,4)	CC-(1,3)	CC-(1,7)	CC-(2,4)	CC-(2, 8)	CC-(3,5)	CC-(3,10)	CC-(5,7)	CC-(6,7)	Screening Level		
Sample Type	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	Industrial		
Depth	1'-2'	1'-2'	1'-2'	1'-2'	1'-2'	2'-4'	1'-2'	0'-2'	1'-2'	3'-4'	Region IX*	RISC ^b	TACO ^c
Date Sampled	5/1/2002	5/1/2002	5/15/2002	5/1/2002	5/1/2002	5/20/2002	5/1/2002	5/21/2002	5/1/2002	5/20/2002			
Chemical Name													
2-Methylnaphthalene (ug/kg)	2,200 U	2,000 U	2,300 U	4,700	2,200 U	9,200 U	2,100 U	8,700 U	2,200 U	8,700 U	N.L.	N.L.	N.L.
bis-(2-ethylhexyl)phthalate (ug/kg)	14,000	12,000	2,300 U	12,000	2,200 U	9,200 U	7,300	8,700 U	2,200 U	8,700 U	180,000	980,000	31,000,000
Naphthalene (ug/kg)	2,200 U	2,000 U	2,300 U	8,300	2,200 U	9,200 U	2,100 U	8,700 U	2,200 U	8,700 U	N.L.	8,000,000	270,000

This table lists only compounds that were detected during analysis. See Appendix C for complete laboratory reports.

*U.S. EPA Region IX Industrial PRGs for Combined Exposure Pathways

^b Indiana RISC closure levels, direct contact soils

^c Illinois EPA Tiered Approach to Corrective Action Objectives (TACO)

^d TACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Inhalation

Bold and highlighted sample concentrations are higher than the most conservative industrial criteria level for that compound

Highlighted screening levels are the most conservative of those listed for industrial soils

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N.L. = Not listed

N.A. = Not analyzed

ug/kg = micrograms per kilogram

Table 4 - 6

Surface Soil Pesticides Sampling Results
 Calumet Container Site, Hammond, IN

Sample ID	CC (0,3)	CC (0,4)	CC (1,3)	CC (1,7)	CC (2,4)	CC (2,8)	CC (3,5)	CC (3,10)	CC (5,7)	CC (6,7)	Criteria Level Industrial	Region IX ^a	RISC ^b	TACO ^c
Sample Type	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil				
Date Sampled	5/1/2002	5/1/2002	5/1/2002	5/1/2002	5/1/2002	5/20/2002	5/1/2002	5/21/2002	5/1/2002	5/20/2002				
Depth	1'-2'	1'-2'	1'-2'	1'-2'	1'-2'	2'-4'	1'-2'	0-2'	1'-2'	3'-4'				
Chemical Name														
Aldrin (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	25 J	4.3 UJ	2.3 U	4.3 U	2.3 U	4.3 UJ	2.2 U	145	800	6,600 ^d	
alpha-BHC (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.2 U	4.3	2.2 U	4.3 UJ	2.2 U	594	4,000	1,500 ^d	
beta-BHC (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.3 U	4.3 U	2.2 U	4.3 UJ	2.2 U	2,080	14,000	N.L.	
Chlordane (Technical)	75 J	84 J	41 J	8.0 UJ	15 J	4.6 U	94	17	8.7 J	80	11,000	68,000	140,000 ^d	
delta-BHC (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.3 U	4.3 U	2.2 U	4.3 UJ	2.2 U	N.L.	N.L.	N.L.	
gamma-BHC (Lindane) (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.3 U	4.3 U	2.2	4.3 UJ	2.2 U	2,881	19,000	4,000 ^e	
4,4'-DDD (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	4.3 U	8.7 UJ	4.3 U	17,078	120,000	24,000 ^f	
4,4'-DDE (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	50	8.6 U	4.3 U	8.7 UJ	4.3 U	12,055	86,000	17,000 ^f	
4,4'-DDT (ug/kg)	210 J	220 J	66 J	64 J	38 J	78	8.6 U	4.3 U	14 J	61	12,055	86,000	1,500,000 ^d	
Dieldrin (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	2.3	8.7 UJ	4.3 U	154	860	2,200 ^d	
Endosulfan I (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.3 U	4.3 U	15	4.3 UJ	26	5,285,514	2,900,000	12,000,000 ^e	
Endosulfan II (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	4.3 U	8.7 UJ	4.3 U	N.L.	N.L.	N.L.	
Endosulfan sulfate (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	4.3 U	8.7 UJ	4.3 U	N.L.	N.L.	N.L.	
Endrin (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	4.3 U	8.7 UJ	4.3 U	264,276	150,000	610,000 ^f	
Endrin aldehyde (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	4.3 U	8.7 UJ	4.3 U	N.L.	N.L.	N.L.	
Endrin ketone (ug/kg)	8.7 UJ	8.1 UJ	9.2 UJ	8.0 UJ	8.6 UJ	4.6 U	8.6 U	4.3 U	8.7 UJ	4.3 U	N.L.	N.L.	N.L.	
Heptachlor (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.3 U	4.3 U	2.2 U	4.3 UJ	2.2 U	548	1,200	11,000 ^d	
Heptachlor epoxide (ug/kg)	4.3 UJ	4.0 UJ	4.6 UJ	4.0 UJ	4.3 UJ	2.3 U	4.3 U	2.2 U	4.3 UJ	2.2 U	271	1,500	9,200 ^d	
Methoxychlor (ug/kg)	44 UJ	41 UJ	46 UJ	40 UJ	43 UJ	23 U	43 U	22 U	44 UJ	2.2 U	4,404,595	2,500,000	10,000,000 ^f	
Toxaphene (ug/kg)	87 UJ	81 UJ	92 UJ	80 UJ	86 UJ	46 U	86 U	43 U	87 UJ	43 U	2,242	12,000	170,000 ^d	

^aU.S. EPA Region IX Industrial PRGs for Combined Exposure Pathways

^bIndiana RISC closure levels, direct contact soils

^cIllinois EPA Tiered Approach to Corrective Action Objectives (TACO)

^dTACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Inhalation

^eTACO Exposure Route-Specific Values for Soils, Industrial - Commercial, Ingestion

Bold and highlighted sample concentrations are higher than the most conservative industrial criteria level for that compound

Highlighted criteria levels are the most conservative of those listed for industrial soils

Sample concentrations flagged with U were below method detection limits

Sample concentrations flagged with J are estimated

N = not listed

ug kg = micrograms per kilogram

APPENDIX A

GEOPROBE BORING LOGS



LOG OF BORING 0,0

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 41
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with heavy staining from 21 to 24"	
3				
6				
9				
12		AR		
15				
18				
21				
24		SW	Oil stained SAND with some gravel	1 2 VOCs = 109 ppm
27				
30				
33		AR	Gravel FILL	
36		SW	Light brown SAND	2 4 XRF - Pb = below detectable limit
39		SW	Black SAND	VOCs = 8 ppm
42	Core completed at 41 inches bgs.			
45				
48				



LOG OF BORING 0,1

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 29	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			Dark brown FILL with silty soil and some fine sand		
3					
6					
9					
12		AR		1	VOCs = 1385 ppm XRF - Pb = 930.4 +/- 81.0 ppm
15					
18					
21					
24		SW	Brown to dark brown very fine SAND	2	1 XRF - Pb = below detectable limit
27					
30	Core completed at 29 inches bgs.				
33					
36					
39					
42					
45					
48					



LOG OF BORING 0,2

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container			Date Drilled : 4/30/02	Borehole Diameter (in.): 3
			Drilling Method : Geoprobe	Total Recovery (in.) : 33
			Drilled By : EPA	
			Logged By : Don Paxton	
			X, Y Coordinates :	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Brown FILL material with light blue paint at 12"	
3				
6				
9				
12		AR		
15				
18				
21		OL	Black stained SOIL	1 3 XRF - Pb = 512.8 +/- 64.6 ppm VOCs = 8.6 ppm
24		SW	Black stained SAND	2 2 XRF - Pb = 103.4 +/- 47.7 ppm
27				
30				
33			Core completed at 33 inches bgs.	
36				
39				
42				
45				
48				



LOG OF BORING 0,3

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 45	
Depth in Inches	GRAPHIC USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0		Organic SOIL		
3	OL			
6	FILL			
12			1	XRF - Pb = 986.4 +/- 89.9 ppm
15				
18	AR			
21				
24				
27			2	VOCs = 1163 ppm XRF - Pb = 1300.0 +/- 130.0 ppm
30		Black stained, oily SAND		
33	SW			
36				
39		Gray SAND		
42	SW			
45		Core completed at 45 inches bgs.		
48				



LOG OF BORING 0,4

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 37
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		OL	Organic SOIL	
3				
6		SW	Light brown gravelly SAND	1 XRF - Pb = 1140.0 +/- 180.0 ppm
9				
12				
15		SW		VOCs = 37 ppm
18				
21				
24		SW	Black stained SAND with white soft material	
27				
30				
33				2 XRF - Pb = 1360.00 +/- 100.0 ppm
36				
39	Core completed at 37 inches bgs.			
42				
45				
48				



LOG OF BORING 0,5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 18	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			FILL		
3					
6					
9					
12			Fine Dark brown SAND	1	2 XRF- Pb = 561.6 +/- 63.8 ppm
15					
18			Core completed at 18 inches bgs.		
21					
24					
27					
30					
33					
36					
39					
42					
45					
48					



LOG OF BORING 0,6

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 36
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL	
3				
6				
9				
12				
15				
18				
21				
24				
27				
30				
33				
36				
39				
42				
45				
48				



LOG OF BORING 0,7

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 19
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		OL	Silty CLAY	
3			Brown SAND with red staining	
6		SW		
12				1 XRF - Pb = below detectable limit
18				
21	Core completed at 19 inches bgs.			
24				
27				
30				
33				
36				
39				
42				
45				
48				



LOG OF BORING 0,8

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 34
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Black silty sand FILL with some gravel, moist	1 1 XRF - Pb = 56.8 +/- 37.8 ppm
3				
6				
9				
12				
15				
18			Greyish SAND, moist	2 1 XRF - Pb = below detectable limit
21				
24				
27				
30				
33				3 1 XRF - Pb = below detectable limit
36	Core completed at 34 inches bgs.			
39				
42				
45				
48				



LOG OF BORING 0,9

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 30
Depth in Inches	GRAPHIC	USCS	DESCRIPTION
Samples	Sample Interval (Inches)	REMARKS	
0		AR	Black organic soil FILL with roots, moist
3			
6		SP	Brown SAND with rocks, moist
9			
12			
15		PT	Black organic PEAT
18			
21		SW	Brwn to gray fine SAND, moist
24			
27			
30			Core completed at 30 inches bgs.
33			
36			
39			
42			
45			
48			



LOG OF BORING 0,10

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02	Borehole Diameter (in.): 3	
			Drilling Method : Geoprobe	Total Recovery (in.): 27	
			Drilled By : EPA		
			Logged By : Don Paxton		
			X, Y Coordinates :		
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			FILL with brownish sand and some gravel	1	1 XRF - Pb = below detectable limit
3		AR			
6			Blackish organic PEAT		
9		PT			
12			Greyish organic fine SILT	2	1 XRF - Pb = below detectable limit
15					
18		OL		3	1 XRF - Pb = below detectable limit
21					
24					
27	Core completed at 27 inches bgs.				
30					
33					
36					
39					
42					
45					
48					



LOG OF BORING 0.5, 2.5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 40
Depth in Inches	GRAPHIC USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		FILL with slag	1 2 XRF - Pb = 660.8 +/- 83.3 ppm
3	AR		
6			
9			
12	SM	Brownish and tan silty SAND FILL	
15			
18		Tan fine grained SAND, wet	2 2 XRF - Pb = 8057.6 +/- 400.0 ppm
21			
24			
27			
30	SW		
33			
36			
39			3 2 XRF - Pb = below detectable limit
42		Core completed at 40 inches bgs.	
45			
48			



LOG OF BORING 0.5, 3.5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 29
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Top soil FILL	1 2 XRF - Pb = 5260.0 +/- 200.0 ppm
3		AR		
6			FILL with brick, sand, slag glass and metal bits, mixed with sand, solvent odor	
9				
12				
15				2 XRF - Pb = 1840.0 +/- 150.0 ppm
18		AR		
21				
24				3 2 XRF - Pb = 7974.4 +/- 490.0 ppm
27				
30			Core completed at 29 inches bgs.	
33				
36				
39				
42				
45				
48				



LOG OF BORING 0.5, 5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 45
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (inches) REMARKS
0			Top soil FILL	1
3	AR			2 XRF - Pb = 8057.6 +/- 400.0 ppm
6		SW	Brown to tan fine SAND	
9				
12			Black FILL material with gravel, glass, metal and black sand	
15		AR		
18				
21				
24			Reddish gravel FILL	2
27				XRF - Pb = 1429.6 +/- 170.0 ppm
30		AR		
33				
36				3
39		SW	Light grey SAND, moist	2 XRF - Pb = 601.6 +/- 92.9 ppm
42				
45			Core completed at 45 inches bgs.	
48				



LOG OF BORING 1,1

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 13
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Light brown SAND	
3				
6	SW			1 12 XRF - Pb = 518.80 +/- 55.8 ppm
9				
12	SW	Stained black SAND		VOCs = 1494 ppm
15			Core completed at 13 inches bgs.	
18				
21				
24				
27				
30				
33				
36				
39				
42				
45				
48				



LOG OF BORING 1,2

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 38	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			Top soil mixed with brown SAND	1	XRF - Pb = 793.2 +/- 91.9 ppm
3					
6					
9					
12					
15		SW		1	XRF - Pb = below detectable limit
18					
21		AR			
24			Blueish sand FILL mixed with paint residue	1	XRF - Pb = below detectable limit
27		AR			
30				1	XRF - Pb = 4288.0 +/- 260.0 ppm
33					
36		SW	Blackish finely grained SAND, moist	1	XRF - Pb = below detectable limit
39			Core completed at 38 inches bgs.		
42					
45					
48					



LOG OF BORING 1,3

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 39
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with light blue, green, yellow and red paint	
3				
6				
9				
12				
15		AR		
18			FILL with brown sand	
21				
24		AR		
27				
30				
33				
36		SW	Dark brown to black stained SAND	
39			Core completed at 39 inches bgs.	VOCs = 304 ppm
42				XRF - Pb = 841.6 +/- 80.2 ppm
45				
48				VOCs = 86 ppm



LOG OF BORING 1,4

(Page 1 of 1)

U.S. Environmental Protection Agency
Calumet Container
Hammond, Illinois

Date Drilled : 4/30/02 Borehole Diameter (in.): 3
Drilling Method : Geoprobe Total Recovery (in.): 40
Drilled By : EPA
Logged By : Don Paxton
X, Y Coordinates :

Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0			FILL			
3						
6						
9						
12						
15						
18						
21						
24						
27			Dark brown grading to tan fine SAND	1	1	XRF - Pb = 1868.8 +/- 94.7 ppm
30						
33						
36						
39						
42			Core completed at 40 inches bgs.			
45						
48						



LOG OF BORING 1,5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 48			
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0			FILL			
3						
6						
9						
12		AR		1	1	XRF - Pb = 1969.6 +/- 120.0 VOCs = 105 ppm
15						
18						
21						
24			Black stained SAND	2	1	XRF - Pb = below detectable limit
27		SW				
30						
33						
36			Dark gray fine SAND			
39		SW				
42						
45						
48						



LOG OF BORING 1,7

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 39	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			FILL with blue material		
3					
6					
9					
12					
15					
18					
21					
24					
27			Dark stained SAND with organic odor		
30					
33					
36					
39			Core completed at 39 inches bgs.		
42					
45					
48					



LOG OF BORING 1,8

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 37	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			Silty sand FILL with some gravel, wet	1	1 XRF - Pb = 95.1 +/- 38.8 ppm
3		AR			
6			Gravel FILL, wet		
9		AR			
12			Silty SAND, wet		
15		SM			
18				2	1 XRF - Pb = 51.2 +/- 32.2 ppm
21			PEAT with some roots, wet		
24		PT			
27					
30			Gray fine SAND, wet		
33		SM			
36				3	1 XRF - Pb = below detectable limit
Core completed at 37 inches bgs.					
39					
42					
45					
48					



LOG OF BORING 1,9

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 28	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0		SW	Brownish black gravelly SAND with some soil, moist	1	XRF - Pb = 140.3 +/- 43.6 ppm
3					
6		GW	Whitish GRAVEL with stone, moist	2	XRF - Pb = 146.6 +/- 60.2 ppm
9					
12					
15					
18		SW	Gray SAND, moist	3	XRF - Pb = below detectable limit
21					
24					
27					
Core completed at 28 inches bgs.					
30					
33					
36					
39					
42					
45					
48					



LOG OF BORING 1,10

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 32
Depth in Inches	GRAPHIC	USCS	DESCRIPTION
Samples	Sample Recovery (Inches)	REMARKS	
0		AR	Brownish top soil FILL with some soil, moist
3			
6		AR	Gray and brown topsoil with gravel FILL
9			
12			
15		AR	
18			
21			
24			
27		PT	Black organic PEAT
30			
33	Core completed at 32 inches bgs.		
36			
39			
42			
45			
48			



LOG OF BORING 1.5, 3.5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 45
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL material with brick, white stone slag with silt	1 2 XRF - Pb = 1960.0 +/- 140.0 ppm
3				
6				
9		AR		
12				
15				
18				2 2 XRF - Pb = 2689.6 +/- 210.0 ppm
21		SM	Silty black SAND	
24			Tan fine grained SAND moist	3 2 XRF - Pb = below detectable limit
27				
30				
33				
36		SW		4 9 XRF - Pb = below detectable limit
39				
42				
45			Core completed at 45 inches bgs.	
48				



LOG OF BORING 1.5, 5.5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 36
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Top soil FILL with stones	1 1 XRF - Pb = 1840.0 +/- 140.0 ppm
3		AR		
6			Whitish gravel and stone FILL	
9		AR		
12				
15				
18				2 1 XRF - Pb = 291.8 +/- 78.8 ppm
21				
24		OL		
27				
30				
33				
36			Brick and slag FILL	3 1 XRF - Pb = below detectable limit
Core completed at 36 inches bgs.				
39				
42				
45				
48				



LOG OF BORING 2,3

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 36
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Slag FILL	
3				
6				
9				
12				1 XRF - Pb = 666.4 +/- 77.9 ppm
15				VOCs = 47.9 ppm
18				
21				
24				
27				2 XRF - Pb = 1400.0 +/- 130.0 ppm
30				
33		SW	Dark brown native fine SAND	
36			Core completed at 36 inches bgs.	
39				
42				
45				
48				



LOG OF BORING 2,4

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 34
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			Light brown silty clay lome soil FILL	
3	AR			
6			Brown gravel FILL	1
9				
12	AR			
15				VOCs = 2.5 ppm
18			Brown gravel FILL with dark staining	
21	AR			2
24				XRF - Pb = 4649.6 +/- 290.0 ppm
27				
30	AR			
33			Black gravel FILL with larger particle size than above	
36				
39				
42				
45				
48			Core completed at 34 inches bgs.	



LOG OF BORING 2,5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 37
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with pink, green and blue paint	
3				
6				1 XRF - Pb = 410.8 +/- 64.2 ppm
9				
12				
15				
18				VOCs = 0 ppm
21				
24				
27			Black sandy CLAY	2 XRF - Pb = 177.9 +/- 69.5 ppm
30				
33				
36	SW		Gray fine SAND	
39			Core completed at 37 inches bgs.	
42				
45				
48				



LOG OF BORING 2,6

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 22
Depth in Inches	GRAPHIC USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		FILL	
3			
6			
9			
12			
15			
18			
21			
Core completed at 22 inches bgs.			
24			
27			
30			
33			
36			
39			
42			
45			
48			



LOG OF BORING 2,8

(Page 1 of 1)

U.S. Environmental Protection Agency
Calumet Container
Hammond, Illinois

Date Drilled : 5/20/02
Drilling Method : Geoprobe
Drilled By : EPA
Logged By : Don Paxton
X, Y Coordinates :

Borehole Diameter (in.): 3
Total Recovery (in.) : 28

Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0			FILL with brown rocky topsoil, dry	1	1	XRF - Pb = 749.2 +/- 85.7 ppm
3		AR				
6		AR	FILL with brown sand and gravel	2	1	XRF - Pb = 243.4 +/- 69.2 ppm
9						
12						
15		PT				
18						
21				3	1	XRF - Pb = below detectable limit
24						
27		SW	Gray SAND	4	1	XRF - Pb = 70.7 +/- 41.9 ppm
30			Core completed at 30 inches bgs.			
33						
36						
39						
42						
45						
48						



LOG OF BORING 2,9

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 33
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL	
3		AR		
6				1 XRF - Pb = 177.9 +/- 65.4 ppm
9		AR	FILL with white crushed rock	
12			FILL	
15				
18				
21		AR		
24				
27				
30				
33			Core completed at 33 inches bgs.	2 1 XRF - Pb = below detectable limit
36				
39				
42				
45				
48				



LOG OF BORING 2,10

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 39
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		AR	FILL with topsoil	
3		AR	FILL with whitish stones	
6		AR		
9		SM	Brown sand and gravel FILL	1 XRF - Pb = 80.2 +/- 45.6 ppm
12		SM		
15		SW		
18		SW	Blackish silty SAND mixed with gravel, moist	2 XRF - Pb = 150.8 +/- 51.6 ppm
21		SW		
24		SW		
27		SW		
30		SW	Gray and black SAND mixed with gravel, wet	3 XRF - Pb = 68.0 +/- 40.9 ppm
33		SW		
36		SW		
39			Core completed at 39 inches bgs.	
42				
45				
48				



LOG OF BORING 2,11

(Page 1 of 1)

U.S. Environmental Protection Agency
Calumet Container
Hammond, Illinois

Date Drilled : 5/20/02 Borehole Diameter (in.): 3
Drilling Method : Geoprobe Total Recovery (in.): 32
Drilled By : EPA
Logged By : Don Paxton
X, Y Coordinates :

Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0			FILL with brown topsoil mixed with gravel and sand, dry increasing moisture with depth	1	1	XRF - Pb = 82.9 +/- 41.6 ppm
3						
6						
9						
12						
15		AR		2	1	XRF - Pb = below detectable limit
18				3	1	XRF - Pb = below detectable limit
21						
24						
27						
30				4	1	XRF - Pb = below detectable limit
33			Core completed at 32 inches bgs.			
36						
39						
42						
45						
48						



LOG OF BORING 2.5, 4.5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 40
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with slag	1
3				2 XRF - Pb = 972.0 +/- 98.4 ppm
6		AR		
9				
12		SM	Brownish and tan silty SAND FILL	2
15				XRF - Pb = below detectable limit
18		SW	Tan fine grained SAND, wet	2
21				XRF - Pb = below detectable limit
24				
27				
30				
33				
36				
39				3 XRF - Pb = below detectable limit
42	Core completed at 40 inches bgs.			
45				
48				



LOG OF BORING 3,3

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 37
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL	
3				
6				
9				
12		AR		
15				
18				
21				
24			Black very fine SAND	
27		SW		
30				
33		SW	Mottled SAND	
36				
39	Core completed at 37 inches bgs.			
42				
45				
48				



LOG OF BORING 3,4

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 32
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (inches) REMARKS
0		FILL		
3		AR		
6			Tan native SAND (swampy area) grading to black and gray	
9				1 XRF - Pb = 58.0 +/- 38.5 ppm
12				
15				
18		SW		
21				
24				VOCs = 0 ppm
27				
30				2 XRF - Pb = below detectable limit
33	Core completed at 32 inches bgs.			
36				
39				
42				
45				
48				



LOG OF BORING 3,5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02	Borehole Diameter (in.): 3
			Drilling Method : Geoprobe	Total Recovery (in.) : 40
			Drilled By : EPA	
			Logged By : Don Paxton	
			X, Y Coordinates :	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL	
3				
6				[1] 1 XRF - Pb = 177.9 +/- 69.5 ppm
9				
12		AR		
15				
18				VOCs = 330 ppm
21				
24			FILL with brown clay	
27		AR		
30				
33				VOCs = 64 ppm
36		SW	Black fine SAND	[2] 1 XRF - Pb = 678.8 +/- 68.8 ppm
39				
42	Core completed at 40 inches bgs.			
45				
48				



LOG OF BORING 3,6

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.): 35
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL	
3				
6				
9				
12		AR		1 1 XRF - Pb = below detectable limit
15				
18				
21				VOCs = 1.3 ppm
24				
27				
30				
33		SW	Light brown fine SAND with traces of clay and black staining between 20 and 23"	2 1 XRF - Pb = below detectable limit
36			Core completed at 35 inches bgs.	
39				
42				
45				
48				



LOG OF BORING 3,7

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 44		
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0			FILL with pink and light blue material throughout			
3						
6						
9						
12						
15						
18						
21		AR				
24						
27						
30						
33						
36						
39						
42						
45			Core completed at 44 inches bgs.			
48						



LOG OF BORING 3,8

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 32	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			FILL		
3					
6					
9		AR		1	1 XRF - Pb = 752.0 +/- 74.4 ppm
12					
15					
18			Dark brown to black GRAVEL		
21					
24		GW			
27					
30		SW	Dark grey to black fine SAND	2	1 XRF - Pb = below detectable limit
33	Core completed at 32 inches bgs.				
36					
39					
42					
45					
48					



LOG OF BORING 3,9

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.): 39
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL	
3				
6				
9		AR		1 2 XRF - Pb = 82.9 +/- 52.2 ppm
12				
15				
18				
21		SW	Brown SAND	
24				
27				
30		AR	FILL	
33				
36		SW	Dark stained fine SAND with some silt	2 1 XRF - Pb = below detectable limit
39	Core completed at 39 inches bgs.			
42				
45				
48				



LOG OF BORING 3,10

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 5/21/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 39
Depth in Inches	GRAPHIC USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		Light brown topsoil FILL	1 XRF - Pb = 134.1 +/- 56.2 ppm
3	AR		
6		Brick and sand FILL with stratified layers or red brick, orangish brick, grey sand	2 XRF - Pb = 103.4 +/- 42.8 ppm
9	AR		
12			
15			
18			
21	SW	Grey to brown SAND	
24	AR	Grey gravel and stone FILL	3 XRF - Pb = 180.7 +/- 61.8 ppm
27			
30	SW	Grey SAND	
33	GW	Grey stone and GRAVEL	
36	SW	Grey SAND	4 XRF - Pb = below detectable limit
39		Core completed at 39 inches bgs.	
42			
45			
48			



LOG OF BORING 4,5

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 12			
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0			Dark brown SAND			
3						
6	SW		Tan SAND	1	1	XRF - Pb = 290.2 +/- 58.5 ppm
9						
12	SW					
Core completed at 12 inches bgs.						
15						
18						
21						
24						
27						
30						
33						
36						
39						
42						
45						
48						



LOG OF BORING 4,7

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 32	
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches)	REMARKS
0			FILL		
3					
6					
9					
AR					
12					
15				1	
18				2	XRF - Pb = below detectable limit
					VOCs = 0 ppm
21			Brown SAND with black stains at 20" grading to grey		
24					
27					
SW					
30					
33			Core completed at 32 inches bgs.	2	1 XRF - Pb = below detectable limit
36					
39					
42					
45					
48					



LOG OF BORING 4,8

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 34
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with black stain water mark at 19"	
3				
6				
9				
12				
15		AR		
18				
21				
24				
27				
30		SW	Grey fine SAND	
33				
Core completed at 34 inches bgs.				
36				
39				
42				
45				
48				



LOG OF BORING 4,9

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 4/30/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 41
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with dark brown sandy gravel and some brick	
3				
6				
9		AR		
12				[1] 1 XRF - Pb = 1469.6 +/- 120.0 ppm
15				
18			Dark brown to grey silty CLAY	VOCs = 0 ppm
21				
24		OL		[2] 1 XRF - Pb = 265.6 +/- 76.2 ppm
27				
30				
33		PT	PEAT with some roots and moist wetland soil	
36		SW	Grey SAND	
39				
42	Core completed at 41 inches bgs.			
45				
48				



LOG OF BORING 5,6

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 32
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (inches)
REMARKS				
0			Sandy FILL with some gravel and metal pieces	1
3				
6				
9				
12			Blackish organic FILL material with greyish sand grading to blackish sand and material	2
15				
18				
21				
24				
27				
30				
33			Core completed at 32 inches bgs.	3
36				
39				
42				
45				
48				



LOG OF BORING 5,7

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/1/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.) : 3 Total Recovery (in.) : 32
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with layer of red brick at 5" bgs.	
3				
6				
9				
12				
15				1 1 XRF - Pb = 180.7 +/- 61.8 ppm
18			Dark brown fine SAND	
21				
24				
27				
30				
33			Core completed at 32 inches bgs.	2 1 XRF - Pb = below detectable limit
36				
39				
42				
45				
48				



LOG OF BORING 6,7

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 33
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0			FILL with layer of red brick at 5" bgs.	1 XRF - Pb = below detectable limit
3				2 XRF - Pb = 1659.2 +/- 130.0 ppm
6				
9		AR		
12				
15				
18			Dark brown fine SAND	3 XRF - Pb = 414.0 +/- 56.9 ppm
21		SW		
24				
27				
30				
33			Core completed at 33 inches bgs.	
36				
39				
42				
45				
48				



LOG OF BORING SD-1

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois		Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 31
Depth in Inches	GRAPHIC USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		Organic material with wood	1 XRF - Pb = below detectable limit
3	PT		
6	SW	Fine SAND	
9		Black PEAT	
12	PT		
15			
18		Greyish SAND with streaks of black organic material	2 XRF - Pb = below detectable limit
21	SW		
24			
27			
30			
Core completed at 31 inches bgs.			
33			
36			
39			
42			
45			
48			



LOG OF BORING SD-2

(Page 1 of 1)

U.S. Environmental Protection Agency Calumet Container Hammond, Illinois			Date Drilled : 5/20/02 Drilling Method : Geoprobe Drilled By : EPA Logged By : Don Paxton X, Y Coordinates :	Borehole Diameter (in.): 3 Total Recovery (in.) : 28
Depth in Inches	GRAPHIC	USCS	DESCRIPTION	Samples Sample Interval (Inches) REMARKS
0		PT	Black organic SOIL and material, loam, wet	
3				
6		SW	Greyish wet SAND with black organic material	1 2 XRF - Pb = below detectable limit
9				
12				
15				
18				2 XRF - Pb = 85.6 +/- 36.7 ppm
21				
24				
27				
30	Core completed at 28 inches bgs.			
33				
36				
39				
42				
45				
48				



LOG OF BORING SD-3

(Page 1 of 1)

U.S. Environmental Protection Agency
Calumet Container
Hammond, Illinois

Date Drilled : 5/20/02
Drilling Method : Geoprobe
Drilled By : EPA
Logged By : Don Paxton
X, Y Coordinates :

Borehole Diameter (in.) : 3
Total Recovery (in.) : 22

Depth in Inches	GRAPHIC USCS	DESCRIPTION	Samples	Sample Interval (Inches)	REMARKS
0		Dark organic SOIL and material with greyish wet sand increasing with depth	1	2	XRF - Pb = below detectable limit
3			2	2	XRF - Pb = below detectable limit
6					
9					
PT					
12					
15					
18					
21			3	2	XRF - Pb = below detectable limit
Core completed at 22 inches bgs.					
24					
27					
30					
33					
36					
39					
42					
45					
48					

APPENDIX B

XRF DATA

Cabinet container & RT Data

No	Date/Time	Mo + Prec	Sr + Prec	Fr + Prec	Th + Prec	Wk + Prec	Cr + Prec	Ni + Prec	Fr + Prec
90	4/15/2001 10:14:00	<LOD							
91	4/15/2001 10:14:36	<LOD							
92	4/15/2001 10:26:46	<LOD							
93	4/15/2001 10:26:52	<LOD							
94	4/15/2001 10:31:08	<LOD							
95	4/15/2001 10:31:51	<LOD							
96	4/15/2001 10:31:57	<LOD							
97	4/15/2001 10:31:59	<LOD							
98	4/15/2001 10:32:18	<LOD							
99	4/15/2001 11:31:17	<LOD							
100	4/15/2001 11:42:22	<LOD							
101	4/15/2001 11:47:34	21.80	<LOD	59.70	<LOD	56.50	<LOD	57.20	<LOD
102	4/15/2001 11:53:16	<LOD	<LOD	47.80	<LOD	45.00	<LOD	47.20	<LOD
103	4/15/2001 11:53:39	<LOD	<LOD	27.00	<LOD	26.80	<LOD	27.20	<LOD
104	4/15/2001 12:06:30	<LOD	<LOD	17.23	<LOD	17.35	<LOD	17.30	<LOD
105	4/15/2001 12:11:56	<LOD	<LOD	13.93	<LOD	13.90	<LOD	13.90	<LOD
106	4/15/2001 12:12:59	<LOD	<LOD	16.50	<LOD	16.40	<LOD	16.50	<LOD
107	4/15/2001 12:21:00	<LOD	<LOD	23.80	<LOD	22.80	<LOD	23.80	<LOD
108	4/15/2001 12:23:16	<LOD	<LOD	9.90	<LOD	9.90	<LOD	9.90	<LOD
109	Shutter Cal	1	N/A						
110	4/15/2001 13:48:00	<LOD	<LOD	14.85	<LOD	14.80	<LOD	14.80	<LOD
111	4/15/2001 13:50:00	<LOD	<LOD	15.15	<LOD	14.80	<LOD	14.80	<LOD
112	4/15/2001 13:57:30	<LOD	<LOD	18.45	<LOD	18.40	<LOD	18.40	<LOD
113	4/15/2001 14:00:30	<LOD	<LOD	16.20	<LOD	16.20	<LOD	16.20	<LOD
114	4/15/2001 14:39:30	<LOD	<LOD	17.55	<LOD	17.50	<LOD	17.50	<LOD
115	4/15/2001 14:46:30	<LOD	<LOD	17.55	<LOD	17.50	<LOD	17.50	<LOD
116	4/15/2001 14:56:30	<LOD	<LOD	20.21	<LOD	20.20	<LOD	20.20	<LOD
117	4/15/2001 14:57:00	<LOD	<LOD	14.85	<LOD	14.80	<LOD	14.80	<LOD
118	4/15/2001 14:58:46	<LOD	<LOD	18.30	<LOD	18.30	<LOD	18.30	<LOD
119	4/15/2001 14:59:43	<LOD	<LOD	16.35	<LOD	16.30	<LOD	16.30	<LOD
120	4/15/2001 15:00:37	<LOD	<LOD	19.20	<LOD	19.20	<LOD	19.20	<LOD
121	4/15/2001 15:04:46	<LOD	<LOD	15.15	<LOD	15.10	<LOD	15.10	<LOD
122	4/15/2001 15:07:46	<LOD	<LOD	11.70	<LOD	11.70	<LOD	11.70	<LOD
123	4/15/2001 15:08:43	<LOD	<LOD	19.05	<LOD	19.00	<LOD	19.00	<LOD
124	4/15/2001 15:09:34	<LOD	<LOD	13.95	<LOD	13.90	<LOD	13.90	<LOD
125	4/15/2001 15:12:16	<LOD	<LOD	20.25	<LOD	20.20	<LOD	20.20	<LOD
126	4/15/2001 15:13:51	<LOD	<LOD	17.70	<LOD	17.65	<LOD	17.65	<LOD
127	4/15/2001 15:14:43	<LOD	<LOD	16.65	<LOD	16.60	<LOD	16.60	<LOD
128	4/15/2001 15:15:37	<LOD	<LOD	19.20	<LOD	19.20	<LOD	19.20	<LOD
129	4/15/2001 15:16:36	<LOD	<LOD	13.95	<LOD	13.90	<LOD	13.90	<LOD
130	4/15/2001 15:17:44	<LOD	<LOD	16.35	<LOD	16.30	<LOD	16.30	<LOD
131	4/15/2001 15:18:51	<LOD	<LOD	13.95	<LOD	13.90	<LOD	13.90	<LOD
132	4/15/2001 15:19:31	<LOD	<LOD	21.20	<LOD	21.15	<LOD	21.20	<LOD
133	4/15/2001 15:20:35	<LOD	<LOD	11.85	<LOD	11.80	<LOD	11.80	<LOD
134	4/15/2001 15:21:36	<LOD	<LOD	17.20	<LOD	17.15	<LOD	17.20	<LOD
135	4/15/2001 15:22:36	<LOD	<LOD	13.05	<LOD	13.00	<LOD	13.00	<LOD
136	4/15/2001 15:23:35	<LOD	<LOD	15.90	<LOD	15.85	<LOD	15.90	<LOD
137	4/15/2001 15:24:35	<LOD	<LOD	16.30	<LOD	16.25	<LOD	16.30	<LOD
138	4/15/2001 15:25:31	<LOD	<LOD	18.60	<LOD	18.55	<LOD	18.60	<LOD
139	4/15/2001 15:26:30	<LOD	<LOD	13.95	<LOD	13.90	<LOD	13.90	<LOD
140	4/15/2001 15:27:33	<LOD	<LOD	21.20	<LOD	21.15	<LOD	21.20	<LOD
141	4/15/2001 15:28:42	<LOD	<LOD	11.80	<LOD	11.75	<LOD	11.80	<LOD
142	4/15/2001 15:29:44	<LOD	<LOD	17.25	<LOD	17.20	<LOD	17.25	<LOD
143	4/15/2001 15:30:48	<LOD	<LOD	16.05	<LOD	16.00	<LOD	16.05	<LOD
144	4/15/2001 15:31:49	<LOD	<LOD	18.40	<LOD	18.35	<LOD	18.40	<LOD
145	4/15/2001 15:32:41	<LOD	<LOD	11.80	<LOD	11.75	<LOD	11.80	<LOD
146	4/15/2001 15:33:40	<LOD	<LOD	16.20	<LOD	16.15	<LOD	16.20	<LOD
147	4/15/2001 15:34:41	<LOD	<LOD	20.25	<LOD	20.20	<LOD	20.25	<LOD
148	4/15/2001 15:35:41	<LOD	<LOD	13.95	<LOD	13.90	<LOD	13.95	<LOD
149	4/15/2001 15:36:41	<LOD	<LOD	16.80	<LOD	16.75	<LOD	16.80	<LOD
150	4/15/2001 15:37:41	<LOD	<LOD	16.90	<LOD	16.85	<LOD	16.90	<LOD
151	4/15/2001 15:38:41	<LOD	<LOD	6.90	<LOD	6.85	<LOD	6.90	<LOD
152	4/15/2001 15:39:41	<LOD	<LOD	18.15	<LOD	18.10	<LOD	18.15	<LOD
153	4/15/2001 15:40:44	<LOD	<LOD	10.70	<LOD	10.65	<LOD	10.70	<LOD
154	4/15/2001 15:41:44	<LOD	<LOD	16.65	<LOD	16.60	<LOD	16.65	<LOD
155	4/15/2001 15:42:45	<LOD	<LOD	10.40	<LOD	10.35	<LOD	10.40	<LOD
156	4/15/2001 15:43:46	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
157	4/15/2001 15:44:47	<LOD	<LOD	18.20	<LOD	18.15	<LOD	18.20	<LOD
158	4/15/2001 15:45:48	<LOD	<LOD	13.90	<LOD	13.85	<LOD	13.90	<LOD
159	4/15/2001 15:46:48	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
160	4/15/2001 15:47:48	<LOD	<LOD	19.10	<LOD	19.05	<LOD	19.10	<LOD
161	4/15/2001 15:48:48	<LOD	<LOD	16.05	<LOD	16.00	<LOD	16.05	<LOD
162	4/15/2001 15:49:48	<LOD	<LOD	10.50	<LOD	10.45	<LOD	10.50	<LOD
163	4/15/2001 15:50:49	<LOD	<LOD	11.70	<LOD	11.65	<LOD	11.70	<LOD
164	4/15/2001 15:51:49	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
165	4/15/2001 15:52:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
166	4/15/2001 15:53:49	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
167	4/15/2001 15:54:49	<LOD	<LOD	19.10	<LOD	19.05	<LOD	19.10	<LOD
168	4/15/2001 15:55:49	<LOD	<LOD	16.90	<LOD	16.85	<LOD	16.90	<LOD
169	4/15/2001 15:56:49	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
170	4/15/2001 15:57:49	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
171	4/15/2001 15:58:49	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
172	4/15/2001 15:59:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
173	4/15/2001 16:00:49	<LOD	<LOD	17.50	<LOD	17.45	<LOD	17.50	<LOD
174	4/15/2001 16:01:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
175	4/15/2001 16:02:49	<LOD	<LOD	17.50	<LOD	17.45	<LOD	17.50	<LOD
176	4/15/2001 16:03:49	<LOD	<LOD	17.50	<LOD	17.45	<LOD	17.50	<LOD
177	4/15/2001 16:04:49	<LOD	<LOD	17.50	<LOD	17.45	<LOD	17.50	<LOD
178	4/15/2001 16:05:49	<LOD	<LOD	17.50	<LOD	17.45	<LOD	17.50	<LOD
166	4/16/2001 00:28:32	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
167	4/16/2001 00:31:08	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
168	4/16/2001 00:34:36	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
169	4/16/2001 00:45:35	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
170	4/16/2001 00:57:36	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
171	4/16/2001 00:58:36	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
172	4/16/2001 00:59:36	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
173	4/16/2001 01:00:37	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
174	4/16/2001 01:01:37	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
175	4/16/2001 01:02:37	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
176	4/16/2001 01:03:37	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
177	4/16/2001 01:04:37	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
178	4/16/2001 01:05:37	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
166	4/16/2001 02:08:32	<LOD	<LOD	16.70	<LOD	16.65	<LOD	16.70	<LOD
167	4/16/2001 02:11:07	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
168	4/16/2001 02:12:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
169	4/16/2001 02:13:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
170	4/16/2001 02:14:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
171	4/16/2001 02:15:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
172	4/16/2001 02:16:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.00	<LOD
173	4/16/2001 02:17:49	<LOD	<LOD	17.00	<LOD	16.95	<LOD	17.0	

Corr	Due Time	Mo + Prec	Zt + Prec	Sr + Prec	Rg + Prec	Ph + Prec	At + Prec	Re + Prec	Cu + Prec	Ni + Prec	Co + Prec	Fe + Prec	Ma + Prec	Cr + Prec	
No															
180	4/16/2002 11:09:10	<LOD = 14.55	107 ± 10.90	59 ± 20.90	265 ± 37.40	<LOD = 43.80	<LOD = 5.40	207.60 ± 44.10	<LOD = 85.20	<LOD = 165.00	<LOD = 121.60 ± 180.00	1109.60 ± 501.00	1119.60 ± 400.00	<LOD = 338.80	
181	4/16/2002 11:12:13	<LOD = 11.55	102 ± 10.70	50 ± 20.90	498 ± 37.40	<LOD = 45.80	<LOD = 5.55	682.40 ± 49.30	<LOD = 45.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	214.88 ± 90.00	214.88 ± 51.00	<LOD = 309.00	
182	4/16/2002 11:19:16	<LOD = 12.90	55 ± 20.90	69 ± 22.50	<LOD = 27.45	<LOD = 3.90	101.40 ± 27.70	<LOD = 45.55	<LOD = 120.30	<LOD = 131.60 ± 180.00	842.80 ± 380.00	701.20 ± 290.00	<LOD = 390.00		
183	4/16/2002 11:22:31	<LOD = 17.75	15.60 ± 10.50	74 ± 22.30	<LOD = 28.20	<LOD = 3.90	141.60 ± 38.00	<LOD = 44.65	<LOD = 120.30	<LOD = 131.60 ± 180.00	802.40 ± 370.00	802.40 ± 270.00	<LOD = 300.00		
184	4/16/2002 11:29:31	<LOD = 13.90	89 ± 20.30	81.40 ± 19.10	<LOD = 32.10	<LOD = 3.90	77.80 ± 26.50	<LOD = 41.15	<LOD = 120.30	<LOD = 131.60 ± 180.00	119.40 ± 96.40	119.40 ± 30.00	<LOD = 270.00		
185	4/16/2002 11:32:36	<LOD = 16.80	139 ± 20.70	90 ± 23.50	<LOD = 32.10	<LOD = 3.90	120.40 ± 30.00	<LOD = 42.10	<LOD = 120.30	<LOD = 131.60 ± 180.00	600.00 ± 330.00	600.00 ± 300.00	<LOD = 300.00		
186	4/16/2002 11:52:14	<LOD = 11.40	108 ± 10.50	94.50 ± 18.00	<LOD = 41.40	<LOD = 5.70	268.60 ± 33.00	<LOD = 48.80	<LOD = 61.45	<LOD = 120.30	<LOD = 131.30 ± 180.00	1129.60 ± 280.00	1129.60 ± 270.00	<LOD = 314.80	
187	4/16/2002 11:56:43	<LOD = 10.15	70 ± 7.60	66 ± 13.90	<LOD = 40.40	<LOD = 5.45	400 ± 40.30	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	1109.60 ± 501.00	1119.60 ± 400.00	<LOD = 338.80	
188	4/16/2002 12:01:19	<LOD = 11.55	16.90 ± 12.00	64 ± 20.90	189.00 ± 35.30	<LOD = 42.00	<LOD = 5.55	193.00 ± 41.00	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	995.80 ± 310.00	995.80 ± 290.00	<LOD = 338.80
189	4/16/2002 12:13:48	<LOD = 16.35	62 ± 10.30	49.60 ± 10.50	76 ± 10 ± 21.60	<LOD = 38.55	<LOD = 4.65	182.80 ± 60.00	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	104.00 ± 37.00	104.00 ± 35.00	<LOD = 308.80
190	4/16/2002 12:16:54	<LOD = 15.15	18 ± 10.30	24 ± 8.80	<LOD = 38.05	<LOD = 4.20	135.20 ± 34.70	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	112.40 ± 34.00	112.40 ± 32.00	<LOD = 300.00	
191	4/16/2002 12:23:38	<LOD = 13.50	12 ± 10.30	104 ± 20.30	<LOD = 35.10	<LOD = 5.05	113.20 ± 53.10	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	113.20 ± 51.00	113.20 ± 49.00	<LOD = 300.00	
192	4/16/2002 12:26:46	<LOD = 16.65	14.60 ± 13.20	102 ± 20 ± 24.80	<LOD = 34.25	<LOD = 6.15	119.60 ± 64.10	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	115.60 ± 64.00	115.60 ± 62.00	<LOD = 300.00	
193	4/16/2002 12:33:06	<LOD = 18.45	21.6 ± 16.20	82 ± 60 ± 13.80	<LOD = 33.75	<LOD = 5.25	120.80 ± 50.25	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	110.80 ± 50.00	110.80 ± 48.00	<LOD = 300.00	
194	4/16/2002 12:33:19	<LOD = 19.65	16.60 ± 13.40	78 ± 20 ± 13.80	<LOD = 34.55	<LOD = 4.90	109.80 ± 40.00	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	100.00 ± 33.00	100.00 ± 31.00	<LOD = 300.00	
195	4/16/2002 12:40:06	<LOD = 15.60	15.20 ± 12.40	63 ± 20 ± 13.40	<LOD = 34.95	<LOD = 5.70	175.00 ± 44.80	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	108.10 ± 63.80	108.10 ± 61.80	<LOD = 300.00	
196	4/16/2002 12:43:19	<LOD = 17.10	11.70 ± 13.30	83 ± 10 ± 13.40	<LOD = 33.10	<LOD = 5.00	118.80 ± 50.00	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	109.20 ± 50.00	109.20 ± 48.00	<LOD = 300.00	
197	4/16/2002 12:45:19	<LOD = 19.60	20.90 ± 12.70	117.70 ± 13.30	<LOD = 34.70	<LOD = 4.95	117.50 ± 44.80	<LOD = 46.40	<LOD = 61.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	118.80 ± 50.00	118.80 ± 48.00	<LOD = 300.00	
198	4/16/2002 12:53:52	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	<LOD = N/A	
199	4/16/2002 13:04:20	<LOD = 19.20	123.90 ± 13.30	68 ± 20 ± 13.20	<LOD = 34.35	<LOD = 4.90	124.80 ± 28.90	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	111.40 ± 50.00	111.40 ± 48.00	<LOD = 300.00	
200	4/16/2002 13:07:03	<LOD = 17.70	10.60 ± 13.00	69.00 ± 12.90	<LOD = 34.35	<LOD = 4.90	100.00 ± 26.50	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
201	4/16/2002 13:11:54	<LOD = 15.90	9.40 ± 11.20	59.00 ± 11.10	<LOD = 34.35	<LOD = 4.90	107.40 ± 25.70	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
202	4/16/2002 13:14:28	<LOD = 13.50	6.90 ± 9.10	49.00 ± 9.10	<LOD = 34.35	<LOD = 4.90	107.40 ± 21.40	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
203	4/16/2002 13:18:52	<LOD = 14.50	11.20 ± 11.20	39.70 ± 9.40	<LOD = 34.35	<LOD = 4.90	107.40 ± 21.40	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
204	4/16/2002 14:27:27	<LOD = 15.00	10.00 ± 10.80	35.90 ± 9.30	<LOD = 34.35	<LOD = 4.90	107.40 ± 21.40	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
205	4/16/2002 14:36:13	<LOD = 17.90	2.70 ± 17.70	47.00 ± 6.70	<LOD = 34.35	<LOD = 4.90	117.70 ± 28.60	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
206	4/16/2002 14:40:56	<LOD = 19.60	10.80 ± 13.50	108.40 ± 13.50	<LOD = 34.35	<LOD = 4.90	117.70 ± 28.60	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	115.60 ± 10.00	115.60 ± 9.00	<LOD = 300.00	
207	4/16/2002 14:58:56	<LOD = 17.00	14.90 ± 13.20	114.90 ± 13.20	<LOD = 34.35	<LOD = 4.90	117.70 ± 28.60	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
208	4/16/2002 15:01:34	<LOD = 12.75	6.20 ± 9.20	36.00 ± 9.20	<LOD = 34.35	<LOD = 4.90	117.70 ± 28.60	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
209	4/16/2002 15:08:43	<LOD = 17.40	35.90 ± 10.90	84.80 ± 22.70	<LOD = 34.35	<LOD = 4.90	118.60 ± 23.30	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
210	4/16/2002 15:11:38	<LOD = 15.90	13.20 ± 12.50	71.10 ± 11.70	<LOD = 34.35	<LOD = 4.90	118.60 ± 23.30	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
211	4/16/2002 15:15:51	<LOD = 17.25	16.70 ± 14.50	137.90 ± 15.00	<LOD = 34.35	<LOD = 4.90	119.50 ± 26.40	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
212	4/16/2002 15:19:15	<LOD = 15.00	23.10 ± 12.40	158.60 ± 14.00	<LOD = 34.35	<LOD = 4.90	120.40 ± 25.90	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
213	4/16/2002 15:31:49	<LOD = 17.55	17.50 ± 17.55	112.40 ± 17.30	<LOD = 34.35	<LOD = 4.90	121.30 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
214	4/16/2002 16:02:17	<LOD = 16.75	7.70 ± 17.50	42.90 ± 9.00	<LOD = 34.35	<LOD = 4.90	122.20 ± 26.70	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
215	4/16/2002 16:06:14	<LOD = 17.75	7.74 ± 17.50	42.90 ± 9.00	<LOD = 34.35	<LOD = 4.90	123.10 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
216	4/16/2002 16:09:54	<LOD = 16.60	8.40 ± 9.80	49.00 ± 21.90	<LOD = 34.35	<LOD = 4.90	124.00 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
217	4/16/2002 16:14:39	<LOD = 14.85	8.40 ± 24.00	35.85 ± 4.00	<LOD = 34.35	<LOD = 4.90	124.90 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
218	4/16/2002 16:15:51	<LOD = 10.95	8.70 ± 7.90	65.70 ± 17.90	<LOD = 34.35	<LOD = 4.90	125.80 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
219	4/16/2002 16:18:18	<LOD = 17.70	14.70 ± 13.90	78.20 ± 12.90	<LOD = 34.35	<LOD = 4.90	126.70 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
220	4/16/2002 16:21:16	<LOD = 19.65	14.40 ± 14.50	114.40 ± 13.90	<LOD = 34.35	<LOD = 4.90	127.60 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00	116.60 ± 10.00	116.60 ± 9.00	<LOD = 300.00	
221	4/16/2002 16:55:04	<LOD = 18.90	10.00 ± 13.70	106.60 ± 26.70	<LOD = 34.35	<LOD = 4.90	128.50 ± 27.20	<LOD = 46.40	<LOD = 6.00	<LOD = 120.30	<LOD = 131.60 ± 180.00				

Serial NLL/LOC/UNITS/Rate: Date: 4/29/2002 to 5/31/2002																		
Cor#	Date/Time	Mo + Prec	Sr + Presc	Rb + Prec	As + Prec	Hg + Pres	Zs + Prec											
6	Shutter Cal 1	4/30/2002 01 20 39	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na			
7	Shutter Cal 1	4/30/2002 10 15 42	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na			
8	Shutter Cal 1	4/30/2002 10 23 56	4.1 ± 0.0	27.10	<LOD	25.65	21.40 ± 10.10	42.90 ± 15.30	<LOD	40.25	1629.60 ± 180.00	<LOD	131.85	505.60 ± 190.00	<LOD	72.75		
9	Shutter Cal 1	4/30/2002 10 23 59	4.1 ± 0.0	27.10	<LOD	25.65	21.40 ± 10.10	42.90 ± 15.30	<LOD	51.60	1469.60 ± 176.20	<LOD	54.15	439.60 ± 160.00	<LOD	66.00		
10	Shutter Cal 1	4/30/2002 12 07 44	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na			
11	Shutter Cal 1	4/30/2002 11 05 37	<LOD	27.40	26.90 ± 12.00	89.70 ± 20.90	75.40 ± 47.70	403.80 ± 200.00	<LOD	215.00	<LOD	110.10	<LOD	121.15	6905.60 ± 101.00	<LOD	NA	
12	Shutter Cal 1	4/30/2002 11 05 37	<LOD	16.15	19.50 ± 7.20	43.90 ± 10.10	41.00 ± 22.70	<LOD	56.25	<LOD	43.95	<LOD	241.15	<LOD	78.60	<LOD	NA	
13	Shutter Cal 1	4/30/2002 13 04 45	<LOD	21.15	20.00 ± 8.30	44.00 ± 12.40	<LOD	41.35	910.40 ± 81.00	<LOD	51.73	900.40 ± 130.00	<LOD	151.73	81.40	<LOD	NA	
14	Shutter Cal 1	4/30/2002 13 11 14	<LOD	18.60	29.40 ± 7.70	31.00 ± 9.90	36.90 ± 22.80	<LOD	62.10	<LOD	45.75	<LOD	24.75	<LOD	11.40	<LOD	NA	
15	Shutter Cal 1	4/30/2002 13 11 14	<LOD	17.25	36.40 ± 7.40	31.20 ± 9.50	40.70 ± 22.20	518.80 ± 55.80	<LOD	66.80	<LOD	41.55	<LOD	21.50	219.20 ± 71.10	<LOD	NA	
16	Shutter Cal 1	4/30/2002 13 11 14	<LOD	20.45	33.00 ± 8.00	41.50 ± 12.00	<LOD	64.40	116.80 ± 64.40	<LOD	56.85	<LOD	30.90	<LOD	99.30	<LOD	NA	
17	Shutter Cal 1	4/30/2002 13 26.52	<LOD	20.10	38.80 ± 8.40	21.20 ± 10.00	62.00 ± 25.00	103.40 ± 47.70	<LOD	108.35	<LOD	54.45	<LOD	25.00	150.00	<LOD	NA	
18	Shutter Cal 1	4/30/2002 13 45 14	<LOD	16.20	25.80 ± 6.16	66.20 ± 14.60	<LOD	46.95	966.40 ± 189.90	<LOD	147.30	<LOD	77.70	<LOD	17.70	<LOD	NA	
19	Shutter Cal 1	4/30/2002 13 45 14	<LOD	16.20	30.90 ± 12.00	34.80 ± 18.10	<LOD	61 - 61.50	1300.00 ± 130.00	<LOD	147.30	<LOD	77.70	<LOD	17.70	<LOD	NA	
20	Shutter Cal 1	4/30/2002 13 35.20	<LOD	20.70	<LOD	10.65	<LOD	14.55	<LOD	32.40	<LOD	51.45	<LOD	10.00	<LOD	NA		
21	Shutter Cal 1	4/30/2002 13 39.00	<LOD	42.90	48.00 ± 19.10	40.20 ± 25.00	<LOD	50.70	1140.00 ± 180.00	<LOD	210.00	<LOD	107.75	<LOD	107.75	109.60 ± 270.00	<LOD	NA
22	Shutter Cal 1	4/30/2002 13 39.00	<LOD	23.40	47.40 ± 10.40	68.10 ± 15.10	<LOD	48.30	1360.00 ± 100.00	<LOD	127.70	<LOD	64.05	<LOD	114.60	510.00	<LOD	NA
23	Shutter Cal 1	4/30/2002 13 39.00	<LOD	19.20	37.90 ± 10.90	40.60 ± 25.10	<LOD	51.80	561.80 ± 63.80	<LOD	77.95	<LOD	35.35	<LOD	21.20	365.40 ± 96.00	<LOD	NA
24	Shutter Cal 1	4/30/2002 13 39.00	<LOD	21.90	19.20 ± 8.30	40.90 ± 27.20	<LOD	49.00 ± 27.20	290.20 ± 58.30	<LOD	77.95	<LOD	51.15	<LOD	15.00	267.80 ± 87.00	<LOD	NA
25	Shutter Cal 1	4/30/2002 14 07.23	16.70 ± 1.50	25.90 ± 8.90	48.00 ± 13.10	<LOD	43.05	841.60 ± 130.00	<LOD	97.35	<LOD	51.35	<LOD	28.05	167.60 ± 73.90	<LOD	NA	
26	Shutter Cal 1	4/30/2002 14 20.50	<LOD	19.35	40.40 ± 9.90	46.80 ± 14.30	<LOD	33.00	166.80 ± 41.40	<LOD	51.40	<LOD	28.05	<LOD	14.00	167.60 ± 73.90	<LOD	NA
27	Shutter Cal 1	4/30/2002 14 20.50	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na	Na			
28	Shutter Cal 1	4/30/2002 15 04.52	26.40 ± 9.50	31.80 ± 9.50	46.40 ± 13.20	<LOD	61.15	1040.00 ± 250.00	<LOD	120.00	<LOD	55.25	<LOD	40.25	64.80 ± 270.00	<LOD	NA	
29	Shutter Cal 1	4/30/2002 15 09.35	27.60 ± 21.50	<LOD	17.70	65.70 ± 18.90	<LOD	61.35	400.00 ± 130.00	<LOD	150.00	<LOD	82.20	<LOD	110.00	1460.00 ± 210.00	<LOD	NA
30	Shutter Cal 1	4/30/2002 15 23.46	14.70 ± 14.00	36.70 ± 8.20	53.10 ± 11.90	<LOD	29.00	186.80 ± 94.70	<LOD	39.15	<LOD	111.45	<LOD	56.65	189.60 ± 120.00	<LOD	NA	
31	Shutter Cal 1	4/30/2002 15 23.46	<LOD	19.05	22.90 ± 7.40	43.10 ± 10.30	<LOD	45.00 ± 23.30	60.45 ± 23.30	<LOD	64.65	<LOD	46.05	<LOD	26.10	210.40 ± 71.20	<LOD	NA
32	Shutter Cal 1	4/30/2002 15 37.40	9.80 ± 1.87	70.70 ± 28.00	<LOD	23.25	64.80 ± 27.70	<LOD	90.15	4649.80 ± 290.00	<LOD	31.00	<LOD	18.00	184.60 ± 70.70	<LOD	NA	
33	Shutter Cal 1	4/30/2002 15 37.40	11.20 ± 7.50	<LOD	17.40	70.10 ± 17.50	<LOD	14.30	116.90 ± 120.00	<LOD	144.15	<LOD	77.30	<LOD	22.75	71.40 ± 11.40	<LOD	NA
34	Shutter Cal 1	5/1/2002 01 18.31	16.35	<LOD	16.35	<LOD	9.00	44.70 ± 9.50	41.10 ± 21.30	<LOD	54.10	<LOD	41.10	<LOD	33.40	121.50 ± 33.40	<LOD	NA
35	Shutter Cal 1	5/1/2002 01 24.26	<LOD	13.80	<LOD	9.10	<LOD	9.55	<LOD	22.70	<LOD	53.00	<LOD	33.50	<LOD	24.40 ± 11.90	<LOD	NA
36	Shutter Cal 1	5/1/2002 02 04.37	17.30 ± 1.50	31.80 ± 9.50	46.40 ± 13.20	<LOD	61.35	1040.00 ± 250.00	<LOD	120.00	<LOD	55.25	<LOD	40.25	64.80 ± 270.00	<LOD	NA	
37	Shutter Cal 1	5/1/2002 02 08.55	17.30 ± 1.50	31.80 ± 9.50	46.40 ± 13.20	<LOD	61.35	1040.00 ± 250.00	<LOD	120.00	<LOD	55.25	<LOD	40.25	64.80 ± 270.00	<LOD	NA	
38	Shutter Cal 1	5/1/2002 02 08.55	17.30 ± 1.50	31.80 ± 9.50	46.40 ± 13.20	<LOD	61.35	1040.00 ± 250.00	<LOD	120.00	<LOD	55.25	<LOD	40.25	64.80 ± 270.00	<LOD	NA	
39	Shutter Cal 1	5/1/2002 02 09.51	<LOD	19.95	27.20 ± 8.10	53.10 ± 15.90	<LOD	34.05	113.55	<LOD	107.85	<LOD	108.00	<LOD	91.35	189.60 ± 120.00	<LOD	NA
40	Shutter Cal 1	5/1/2002 02 09.51	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
41	Shutter Cal 1	5/1/2002 02 09.51	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
42	Shutter Cal 1	5/1/2002 02 09.51	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
43	Shutter Cal 1	5/1/2002 02 09.51	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
44	Shutter Cal 1	5/1/2002 02 09.51	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
45	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
46	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
47	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
48	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
49	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
50	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
51	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
52	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
53	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
54	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
55	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
56	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
57	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
58	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
59	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
60	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95	113.40 ± 58.36	<LOD	NA
61	Shutter Cal 1	5/1/2002 02 10.17	<LOD	17.40	20.70 ± 8.00	40.10 ± 9.50	<LOD	23.25	54.00 ± 30.00	<LOD	41.05	<LOD	41.05	<LOD	22.95			

Site: Date: 5/21/2002

Corl Shutter Cal	Date/Time	Mo ± Prec	Zr ± Prec	Sr ± Prec	Rb ± Prec	Pb ± Prec	As ± Prec	Hg ± Prec	Zn ± Prec	Cu ± Prec	Ni ± Prec	Co ± Prec	Fe ± Prec	Mn ± Prec	Cr ± Prec
		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/21/2002 15 15 51	<LOD = 14.40	<LOD = 16.35	86.50 ± 14.80	46.00 ± 28.70	179.70 ± 48.50	<LOD = 55.05	<LOD = 21.00	349.60 ± 77.80	<LOD = 165.00	<LOD = 285.00	<LOD = 705.00	10899.20 ± 889.60	<LOD = 1650.00	<LOD = 480.00
	5/21/2002 15 15 54	<LOD = 14.40	<LOD = 16.35	86.50 ± 14.80	46.00 ± 28.70	179.70 ± 48.50	<LOD = 55.05	<LOD = 21.00	349.60 ± 77.80	<LOD = 165.00	<LOD = 285.00	<LOD = 705.00	10899.20 ± 889.60	<LOD = 1650.00	<LOD = 480.00
	5/21/2002 15 18 19	<LOD = 16.20	<LOD = 18.45	125.10 ± 19.40	<LOD = 51.00	302.40 ± 64.40	<LOD = 78.30	<LOD = 32.85	400.80 ± 95.10	<LOD = 195.00	<LOD = 375.00	<LOD = 1020.00	18598.40 ± 1300.00	<LOD = 2400.00	696.00 ± 460.00
	5/21/2002 15 20 38	<LOD = 17.40	33.20 ± 15.50	161.50 ± 21.60	<LOD = 51.90	269.00 ± 62.20	<LOD = 73.95	<LOD = 30.45	481.20 ± 100.00	<LOD = 210.00	<LOD = 390.00	<LOD = 1050.00	19699.20 ± 1400.00	<LOD = 2548.80	<LOD = 705.00

APPENDIX C

ANALYTICAL DATA

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

Attn: Mr. Rick Mehl / Ms.Tonya Balla

ACE Technologies Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 5/16/02

Project Name: Calumet Container

Episode #:

7827

Lab Sample ID

1

CC (2-4)

VOLATILES

Client Sample ID

2

CC (3-5)

3

CC (5-7)

4

CC (1-7)

8

Trip Blank

Date Sampled

Soil

Soil

Soil

Soil

Water
ug/l

Time Sampled

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

9:20

9:57

11:00

11:35

Units

VOA 8260B

1,1,1,2-Tetrachloroethane

ug/kg

<410

<16

<16

<15

<1.0

1,1,1-Trichloroethane

ug/kg

<410

<16

<16

<15

<1.0

1,1,2,2-Tetrachloroethane

ug/kg

<410

<16

<16

<15

<1.0

1,1,2-Trichloroethane

ug/kg

<410

<16

<16

<15

<1.0

1,1-Dichloroethane

ug/kg

<410

<16

<16

<15

<1.0

1,1-Dichloroethene

ug/kg

<410

<16

<16

<15

<1.0

1,1-Dichloropropene

ug/kg

<410

<16

<16

<15

<1.0

1,2,3-Trichlorobenzene

ug/kg

<410

<16

<16

<15

<1.0

1,2,3-Trichloropropane

ug/kg

<410

<16

<16

<15

<1.0

1,2,4-Trichlorobenzene

ug/kg

8000

<16

<16

20

<1.0

1,2,4-Trimethylbenzene

ug/kg

<410

19

88

300

<1.0

1,2-Dibromo-3-chloropropane

ug/kg

<410

<16

<16

<15

<1.0

1,2-Dibromoethane

ug/kg

<410

<16

<16

<15

<1.0

1,2-Dichlorobenzene

ug/kg

<410

<16

<16

<15

<1.0

1,2-Dichloroethane

ug/kg

<410

<16

<16

<15

<1.0

1,2-Dichloropropane

ug/kg

2600

<16

<16

<15

<1.0

1,3,5-Trimethylbenzene

ug/kg

<410

<16

24

100

<1.0

1,3-Dichlorobenzene

ug/kg

<410

<16

<16

<15

<1.0

1,3-Dichloropropane

ug/kg

<410

<16

<16

<15

<1.0

1,4-Dichlorobenzene

ug/kg

<410

<16

<16

<15

<1.0

1-Chlorohexane

ug/kg

<410

<16

<16

<15

<1.0

2,2-Dichloropropane

ug/kg

<410

<16

<16

<15

<1.0

2-Butanone

ug/kg

<2000

<80

<80

<75

<5.0

2-Chloroethyl vinyl ether

ug/kg

<410

<16

<16

<15

<1.0

2-Chlorotoluene

ug/kg

<410

<16

<16

<15

<1.0

2-Hexanone

ug/kg

<2000

<80

<80

<80

<5.0

4-Chlorotoluene

ug/kg

<410

<16

<16

<15

<1.0

4-Methyl-2-pentanone

ug/kg

<2000

<80

<80

<75

<5.0

Acetone

ug/kg

<2000

<80

<80

<75

<5.0

Acrylonitrile

ug/kg

<2000

<80

<80

<75

<5.0

333000001

Episode #:	Lab Sample ID	Client Sample ID	7827									
			1 CC (2-4)	2 CC (3-5)	3 CC (5-7)	4 CC (1-7)	8 Trip Blank					
Matrix			Soil	Soil	Soil	Soil	Water ug/l					
Date Sampled			5/1/02	5/1/02	5/1/02	5/1/02	5/1/02					
Dilution Factor			9:20	9:57	11:00	11:35						
VOA 8260B(Contd...)	Units											
Benzene	ug/kg	<410	<16	<16	19	<1.0						
Bromobenzene	ug/kg	<410	<16	<16	<15	<1.0						
Bromochloromethane	ug/kg	<410	<16	<16	<15	<1.0						
Bromodichloromethane	ug/kg	<410	<16	<16	<15	<1.0						
Bromoform	ug/kg	<410	<16	<16	<15	<1.0						
Bromomethane	ug/kg	<410	<16	<16	<15	<1.0						
Carbon disulfide	ug/kg	<410	<16	<16	<15	<1.0						
Carbon tetrachloride	ug/kg	<410	<16	<16	<15	<1.0						
Chlorobenzene	ug/kg	<410	<16	<16	<15	<1.0						
Chloroethane	ug/kg	<410	<16	<16	<15	<1.0						
Chloroform	ug/kg	<410	<16	<16	<15	<1.0						
Chloromethane	ug/kg	<410	<16	<16	<15	<1.0						
cis-1,2-Dichloroethene	ug/kg	<410	<16	<16	<15	<1.0						
cis-1,3-Dichloropropene	ug/kg	<410	<16	<16	<15	<1.0						
Dibromochloromethane	ug/kg	<410	<16	<16	<15	<1.0						
Dibromomethane	ug/kg	<410	<16	<16	<15	<1.0						
Dichlorodifluoromethane	ug/kg	<410	<16	<16	<15	<1.0						
Ethyl benzene	ug/kg	1600	51	200	370	<1.0						
Hexachlorobutadiene	ug/kg	<410	<16	<16	<15	<1.0						
Iodomethane	ug/kg	<410	<16	<16	<15	<1.0						
Isopropylbenzene	ug/kg	<410	<16	<16	24	<1.0						
m/p-xylene	ug/kg	7600	180	640	1800	<2.0						
Methyl t-Butylether	ug/kg	<410	<16	<16	<15	<1.0						
Methylene chloride	ug/kg	<410	<16	<16	<15	<1.0						
n-Butylbenzene	ug/kg	920	<16	<16	44	<1.0						
n-Propylbenzene	ug/kg	700	<16	<16	39	<1.0						
Naphthalene	ug/kg	1100	<16	29	40	<1.0						
o-Xylene	ug/kg	3400	48	210	570	<1.0						
p-Isopropyltoluene	ug/kg	510	<16	<16	<15	<1.0						
sec-Butylbenzene	ug/kg	<410	<16	<16	<15	<1.0						
Styrene	ug/kg	<410	<16	<16	16	<1.0						
tert-Butylbenzene	ug/kg	<410	<16	<16	<15	<1.0						
Tetrachloroethene	ug/kg	<410	<16	<16	17	<1.0						
Toluene	ug/kg	940	240	850	1500	<1.0						
trans-1,2-Dichloroethene	ug/kg	<410	<16	<16	<15	<1.0						
trans-1,3-Dichloropropene	ug/kg	<410	<16	<16	<15	<1.0						
Trichloroethene	ug/kg	<410	<16	<16	<15	<1.0						
Trichlorofluoromethane	ug/kg	<410	<16	<16	<15	<1.0						
Vinyl Acetate	ug/kg	<2000	<80	<80	<80	<5.0						
Vinyl chloride	ug/kg	<410	<16	<16	<15	<1.0						

0000002

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

Attn: Mr. Rick Mehl / Ms. Tonya Balla

ACE Technologies Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 5/16/02

Project Name: Calumet Container

Episode #:

7827

Lab Sample ID

1

CC (2-4)

2

CC (3-5)

3

CC (5-7)

4

CC (1-7)

9

CC (0-3)

10

CC (0-4)

11

CC (1-3)

Client Sample ID

Soil

Soil

Soil

Soil

Soil

Soil

Soil

Date Sampled

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

Time Sampled

9:20

9:57

11:00

11:35

16:30

16:45

17:00

Units

SVOA 8270C

1,2,4-Trichlorobenzene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

1,2-Dichlorobenzene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

1,3-Dichlorobenzene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

1,4-Dichlorobenzene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,2'-oxybis (1-Chloropropane)

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,3,4,6-Tetrachlorophenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,4,5-Trichlorophenol

ug/kg

<5400

<5300

<5400

<2000

<5400

<5100

<5800

2,4,6-Trichlorophenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,4-Dichlorophenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,4-Dimethylphenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,4-Dinitrophenol

ug/kg

<5400

<5300

<5400

<5000

<5400

<5100

<5800

2,4-Dinitrotoluene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2,6-Dinitrotoluene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2-Chloronaphthalene

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2-Chlorophenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2-Methylnaphthalene

ug/kg

<2200

<2100

4700

<2200

<2000

<2300

2-Methylphenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

2-Nitroaniline

ug/kg

<5400

<5300

<5400

<2000

<5400

<5100

<5800

2-Nitrophenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

3,3'-Dichlorobenzidine

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

3-Nitroaniline

ug/kg

<5400

<5300

<5400

<5000

<5400

<5100

<5800

4,6-Dinitro-2-methylphenol

ug/kg

<5400

<5300

<5400

<5000

<5400

<5100

<5800

4-Bromophenyl phenyl ether

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

4-Chloro-3-methylphenol

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

4-Chloroaniline

ug/kg

<2200

<2100

<2200

<2000

<2200

<2000

<2300

4-Chlorophenyl phenyl ether

ug/kg

<2200

<2100

<2200

<2000

Episode #:		7827							
			1 CC (2-4)	2 CC (3-5)	3 CC (5-7)	4 CC (1-7)	9 CC (0-3)	10 CC (0-4)	11 CC (1-3)
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date Sampled		5/1/02	5/1/02	5/1/02	5/1/02	5/1/02	5/1/02	5/1/02	5/1/02
Dilution Factor		9:20	9:57	11:00	11:35	16:30	16:45	17:00	
SVOA 8270C									
Acenaphthylene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Aniline	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Anthracene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Benzo(a)anthracene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Benzo(a)pyrene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Benzo(b)fluoranthene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Benzo(g,h,i)perylene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Benzo(k)fluoranthene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Benzoic acid	ug/kg	<5400	<5300	<5400	<5000	<5400	<5100	<5800	
Benzyl alcohol	ug/kg	<5400	<5300	<5400	<5000	<5400	<5100	<5800	
Bis(2-chloroethoxy)methane	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Bis(2-chloroethyl)ether	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Bis(2-chloroisopropyl) ether	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Bis(2-ethylhexyl)phthalate	ug/kg	<2200	7300	<2200	12000	14000	12000	<2300	
Butylbenzylphthalate	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Carbazole	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Chrysene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Di-n-butylphthalate	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Di-n-octylphthalate	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Dibenzo(a,h)anthracene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Dibenzofuran	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Diethylphthalate	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Dimethylphthalate	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Fluoranthene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Fluorene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Hexachlorobenzene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Hexachlorobutadiene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Hexachlorocyclopentadiene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Hexachloroethane	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Indeno(1,2,3-c,d)pyrene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Isophorone	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
N-Nitroso-di-n-propylamine	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
N-Nitrosodimethylamine	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
N-Nitrosodiphenylamine	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Naphthalene	ug/kg	<2200	<2100	<2200	8300	<2200	<2000	<2300	
Nitrobenzene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Pentachlorophenol	ug/kg	<5400	<5300	<5400	<5000	<5400	<5100	<5800	
Phenanthrene	ug/kg	<2200	<2100	<2200	<2000	<5400	<5100	<2300	
Phenol	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	
Pyrene	ug/kg	<2200	<2100	<2200	<2000	<2200	<2000	<2300	

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

Attn: Mr. Rick Mehl / Ms. Tonya Balla

CE Technologies Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 5/16/02

Project Name: Calumet Container

Episode #:

7827

Lab Sample ID

5

Client Sample ID

6

CC (3-7)

Soil

7

CC (4,7)

CC (3-8)

Soil

Soil

Date Sampled

5/1/02

Time Sampled

11:30

5/1/02

11:15

5/1/02

14:24

Units

TAL Metals

Aluminum

mg/kg

5600

2200

2000

Antimony

mg/kg

<45

<4.6

<4.6

Arsenic

mg/kg

64.9

6.51

14.4

Barium

mg/kg

71

28

160

Beryllium

mg/kg

<3.75

<0.38

0.345

Cadmium

mg/kg

<3.75

<0.38

2.64

Calcium

mg/kg

93000

12000

88000

Chromium

mg/kg

780

9.4

170

Cobalt

mg/kg

6.7

1.9

6.6

Copper

mg/kg

28

15

140

Iron

mg/kg

120000

8100

19000

Lead

mg/kg

133

30.5

805

Magnesium

mg/kg

37000

5100

49000

Manganese

mg/kg

25000

450

1800

Mercury

mg/kg

0.3

0.08

0.96

Nickel

mg/kg

<15

4.9

12

Potassium

mg/kg

<750

220

440

Selenium

mg/kg

<5.25

<0.53

<0.535

Silver

mg/kg

<3.7

<0.38

1.2

Sodium

mg/kg

<750

<76

160

Thallium

mg/kg

12.9

0.609

1.29

Vanadium

mg/kg

240

7.0

38

Zinc

mg/kg

38

62

260

00000005

Roy F Weston, Inc.
 750 E Bunker Ct, Suite 500
 Vernon Hills, IL 60061
 Tel: (847) 918-4041
 Fax: (847) 918-4055

Attn: Mr. Rick Mehl/ Ms. Tonya Balla

Episode #:

PESTICIDES

7827 1 2 3 4 9 10 11

Lab Sample ID	CC (2-4)	CC (3-5)	CC (5-7)	CC (1-7)	CC (0-3)	CC (0-4)	CC (1-3)
---------------	----------	----------	----------	----------	----------	----------	----------

	Soil						
--	------	------	------	------	------	------	------

Date Sampled

5/1/02	5/1/02	5/1/02	5/1/02	5/1/02	5/1/02	5/1/02
--------	--------	--------	--------	--------	--------	--------

Time Sampled

9:20	9:57	11:00	11:35	16:30	16:45	17:00
------	------	-------	-------	-------	-------	-------

Pesticides

	Units	1	2	3	4	9	10	11
4,4'-DDD	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
4,4'-DDE	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
4,4'-DDT	ug/kg	38	<8.6	14	64	210	220	66
Aldrin	ug/kg	<4.3	<4.3	<4.3	25	<4.3	<4.0	<4.6
alpha-BHC	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
beta-BHC	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
Chlordane(Technical)	ug/kg	15	94	8.7	<8.0	75	84	41
delta-BHC	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
Dieldrin	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
Endosulfan II	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
Endosulfon Sulfate	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
Endosulfon -1	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
Endrin	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
Endrin Aldehyde	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
Endrin Ketone	ug/kg	<8.6	<8.6	<8.7	<8.0	<8.7	<8.1	<9.2
gamma-BHC	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
Heptachlor	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
Heptachlor Epoxide	ug/kg	<4.3	<4.3	<4.3	<4.0	<4.3	<4.0	<4.6
Methoxychlor	ug/kg	<43	<43	<44	<40	<44	<41	<46
Toxaphene	ug/kg	<86	<85	<87	<80	<87	<81	<92

A Technologies Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 5/16/02

Project Name: Calumet Container

Roy F Weston, Inc.
750 E Bunker Ct, Suite 500
Vernon Hills, IL 60061
Tel: (847) 918-4041
Fax: (847) 918-4055

ACE Technologies Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 5/16/02

Project Name: Calumet Container

Attn: Mr. Rick Mehl/Tonya Balla

PCB's

Episode #:

7827

Lab Sample ID

Client Sample ID

1
CC (2-4)

2
CC (3-5)

3
CC (5-7)

4
CC (1-7)

9
CC (0-3)

10
CC (0-4)

11
CC (1-3)

Soil

Soil

Soil

Soil

Soil

Soil

Soil

Date Sampled

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

5/1/02

Time Sampled

9:20

9:57

11:00

11:35

16:30

16:45

17:00

Units

PCB's

Aroclor 1016

ug/kg

<86

<85

<87

<80

<87

<81

<92

Aroclor 1221

ug/kg

<86

<85

<87

<80

<87

<81

<92

Aroclor 1232

ug/kg

<86

<85

<87

<80

<87

<81

<92

Aroclor 1242

ug/kg

<86

<85

<87

<80

<87

<81

<92

Aroclor 1248

ug/kg

<86

<85

<87

<80

<87

<81

<92

Aroclor 1254

ug/kg

<86

<85

<87

<80

<87

<81

<92

Aroclor 1260

ug/kg

<86

<85

<87

<80

<87

<81

<92

0000007



AAL Certificate of Analysis Summary WO# 1943

Client Project Number: 0222

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

Analysis Requested	Lab ID: Field ID: Depth: Matrix: Sampled:	1943-001 CC (0-0)	1943-002 CC (0-1)	1943-003 CC (0-2)	1943-004 CC (0-3)	1943-005 CC (1-3)	1943-006 CC (0-4)
Percent Solids by CLP	Prep Date: Analyzed: Units:	05/17/02 13:00 % Results RL					
Percent Solids		75.0 1.00	83.0 1.00	87.0 1.00	87.0 1.00	79.0 1.00	85.0 1.00

<RL = Less Than Reporting Limit



ANAL Certificate of Analysis Summary WO# 1943

Client : Roy F. Weston, Inc.- Illinois, Vernon Hills, IL

Client Project Name: Calumet Container

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

Analysis Requested	Lab ID :	1943-001	1943-002	1943-003	1943-004	1943-005	1943-006	
	Field ID :	CC (0-0)	CC (0-1)	CC (0-2)	CC (0-3)	CC (1-3)	CC (0-4)	
Depth :	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
Matrix :	04/30/02 13:20	04/30/02 13:30	04/30/02 14:20	04/30/02 14:35	04/30/02 15:42	04/30/02 14:50		
Sampled :								
VOCs by SW8260B	Prep Date:	05/03/02 11:23	05/03/02 11:23	05/03/02 11:23	05/03/02 11:23	05/03/02 11:23	05/03/02 11:23	
	Analyzed:	05/03/02 14:18	05/03/02 15:22	05/03/02 15:52	05/03/02 20:08	05/03/02 20:35	05/03/02 19:41	
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	
	Results	RL	Results	RL	Results	RL	Results	RL
1,1,1-Trichloroethane	<RL	3300	<RL	30000	<RL	29000	<RL	6300
1,1,2,2-Tetrachloroethane	<RL	3300	<RL	30000	<RL	29000	<RL	6300
1,1,2-Trichloroethane	<RL	3300	<RL	30000	<RL	29000	<RL	6300
1,1-Dichloroethane	<RL	3300	<RL	30000	<RL	29000	<RL	6300
1,1-Dichloroethene	<RL	3300	<RL	30000	<RL	29000	<RL	6300
1,2-Dichloroethane	<RL	3300	<RL	30000	<RL	29000	<RL	6300
1,2-Dichloropropane	<RL	3300	<RL	30000	<RL	29000	<RL	6300
2-Butanone	<RL	33000	<RL	300000	<RL	290000	<RL	140000
2-Hexanone	<RL	33000	<RL	300000	<RL	290000	<RL	140000
4-Methyl-2-Pentanone	<RL	33000	<RL	300000	<RL	290000	<RL	140000
Acetone	<RL	33000	<RL	300000	<RL	290000	<RL	140000
Benzene	<RL	3300	<RL	30000	<RL	29000	<RL	14000
Bromodichloromethane	<RL	3300	<RL	30000	<RL	29000	<RL	14000
Bromoform	<RL	3300	<RL	30000	<RL	29000	<RL	14000
Bromomethane	<RL	3300	<RL	30000	<RL	29000	<RL	14000
Carbon Disulfide	<RL	3300	<RL	30000	<RL	29000	<RL	14000

<RL = Less Than Reporting Limit



AAL Certificate of Analysis Summary WO# 1943

Client Project Number: 0222 Date Received in Lab: 05/01/02 10:20
 Client Contact: Rick Mehl Report Date: 05/28/02 11:10
 Project Location: AAL Contact: Michael Trinidad
 Quote Number: e-Mail: miket@accura.com
 Email / Fax Number:

<i>Analysis Requested</i>	<i>Lab ID :</i> <i>Field ID :</i> <i>Depth :</i> <i>Matrix :</i> <i>Sampled :</i>	1943-001 CC (0-0)	1943-002 CC (0-1)	1943-003 CC (0-2)	1943-004 CC (0-3)	1943-005 CC (1-3)	1943-006 CC (0-4)
<i>VOCs by SW8260B</i>	<i>Prep Date:</i> <i>Analyzed:</i> <i>Units:</i>	05/03/02 11:23 05/03/02 14:18 ug/kg	05/03/02 11:23 05/03/02 15:22 ug/kg	05/03/02 11:23 05/03/02 15:52 ug/kg	05/03/02 11:23 05/03/02 20:08 ug/kg	05/03/02 11:23 05/03/02 20:35 ug/kg	05/03/02 11:23 05/03/02 19:41 ug/kg
Carbon Tetrachloride		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Chlorobenzene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Chloroethane		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Chloroform		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Chloromethane		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
cis-1,2-Dichloroethene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
cis-1,3-Dichloropropene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Dibromochloromethane		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Ethylbenzene		51000 3300	750000 30000	620000 29000	390000 14000	59000 6300	<RL 2900
Methylene Chloride		<RL 6700	<RL 60000	<RL 57000	<RL 29000	<RL 13000	<RL 5900
Styrene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Tetrachloroethene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Toluene		<RL 3300	8400000 750000	3600000 140000	22000 14000	<RL 6300	<RL 2900
trans-1,2-Dichloroethene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
trans-1,3-Dichloropropene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900
Trichloroethene		<RL 3300	<RL 30000	<RL 29000	<RL 14000	<RL 6300	<RL 2900

<RL = Less Than Reporting Limit



AAL Certificate of Analysis Sum. No WO# 1943

Client : Roy F. Weston, Inc.- Illinois, Vernon Hills, IL

Client Project Name: Calumet Container

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

Analysis Requested	Lab ID :	1943-001	1943-002		1943-003		1943-004		1943-005		1943-006	
	Field ID :	CC (0-0)	CC (0-1)		CC (0-2)		CC (0-3)		CC (1-3)		CC (0-4)	
VOCs by SW8260B	Depth :	SOIL	SOIL		SOIL		SOIL		SOIL		SOIL	
	Matrix :	04/30/02 13:20	04/30/02 13:30		04/30/02 14:20		04/30/02 14:35		04/30/02 15:42		04/30/02 14:50	
	Prep Date:	05/03/02 11:23	05/03/02 11:23		05/03/02 11:23		05/03/02 11:23		05/03/02 11:23		05/03/02 11:23	
	Analyzed:	05/03/02 14:18	05/03/02 15:22		05/03/02 15:52		05/03/02 20:08		05/03/02 20:35		05/03/02 19:41	
	Units:	ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL	Results	RL
Trichlorofluoromethane	<RL	3300	<RL	30000	<RL	29000	<RL	14000	<RL	6300	<RL	2900
Vinyl Acetate	<RL	67000	<RL	600000	<RL	570000	<RL	290000	<RL	130000	<RL	59000
Vinyl Chloride	<RL	3300	<RL	30000	<RL	29000	<RL	14000	<RL	6300	<RL	2900
Xylenes, Total	240000	10000	4200000	450000	2300000	86000	1700000	43000	87000	19000	16000	8800

<RL = Less Than Reporting Limit



AAL Certificate of Analysis Summary WO# 1943

Report Date: 05/28/02 11:10

Client Project Name: aluminum container

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

<i>Analysis Requested</i>	<i>Lab ID:</i> 1943-007 <i>Field ID:</i> CC (2-3) <i>Depth:</i> <i>Matrix:</i> SOIL <i>Sampled:</i> 04/30/02 16:03	<i>Lab ID:</i> 1943-008 <i>Field ID:</i> CC (1-5) <i>Depth:</i> <i>Matrix:</i> SOIL <i>Sampled:</i> 04/30/02 16:32					
Percent Solids by CLP	<i>Prep Date:</i> 05/17/02 13:00 <i>Analyzed:</i> % <i>Units:</i> Results RL	<i>Prep Date:</i> 05/10/02 10:30 <i>Analyzed:</i> % <i>Units:</i> Results RL					
Percent Solids	91.0 1.00	78 1.0					

<RL = Less Than Reporting Limit



IL Certificate of Analysis Summary WO# 1943

Client : Roy F. Weston, Inc.- Illinois, Vernon Hills, IL

Client Project Name: Calumet Container

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

<i>Analysis Requested</i>	<i>Lab ID :</i>	1943-007	<i>Lab ID :</i>	1943-008					
	<i>Field ID :</i>	CC (2-3)	<i>Field ID :</i>	CC (1-5)					
<i>VOCs by SW8260B</i>	<i>Depth :</i>	SOIL	<i>Depth :</i>	SOIL					
	<i>Matrix :</i>	04/30/02 16:03	<i>Matrix :</i>	04/30/02 16:32					
1,1,1-Trichloroethane	<i>Sampled :</i>	<i>Prep Date:</i>	05/03/02 11:23	<i>Analyzed:</i>	05/03/02 11:23	<i>Units:</i>	ug/kg	ug/kg	
					<th>Results</th> <th>RL</th> <th>Results</th> <th>RL</th>	Results	RL	Results	RL
1,1,2,2-Tetrachloroethane		<RL	2700	<RL	32000				
1,1,2-Trichloroethane		<RL	2700	<RL	32000				
1,1-Dichloroethane		<RL	2700	<RL	32000				
1,1-Dichloroethene		<RL	2700	<RL	32000				
1,2-Dichloroethane		<RL	2700	<RL	32000				
1,2-Dichloropropane		<RL	2700	<RL	32000				
2-Butanone		<RL	27000	<RL	320000				
2-Hexanone		<RL	27000	<RL	320000				
4-Methyl-2-Pentanone		<RL	27000	<RL	320000				
Acetone		<RL	27000	<RL	320000				
Benzene		<RL	2700	<RL	32000				
Bromodichloromethane		<RL	2700	<RL	32000				
Bromoform		<RL	2700	<RL	32000				
Bromomethane		<RL	2700	<RL	32000				
Carbon Disulfide		<RL	2700	<RL	32000				

<RL = Less Than Reporting Limit



AAL Certificate of Analysis Summary WO# 1943

Client : Roy F. Weston, Inc.- Illinois, Vernon Hills, IL

Client Project Name: Calumet Container

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

Analysis Requested	Lab ID :	1943-007	1943-008						
	Field ID :	CC (2-3)	CC (1-5)						
VOCs by SW8260B	Depth :	SOIL	SOIL						
	Matrix :	04/30/02 16:03	04/30/02 16:32						
Carbon Tetrachloride	Prep Date:	05/03/02 11:23	05/03/02 11:23						
	Analyzed:	05/03/02 17:48	05/03/02 18:15						
	Units:	ug/kg	Results	RL	ug/kg				
					Results	RL			
Ethylbenzene	<RL	2700	<RL	32000					
Methylene Chloride	<RL	2700	<RL	32000					
Styrene	<RL	2700	<RL	32000					
Toluene	<RL	2700	<RL	32000					
trans-1,2-Dichloroethene	<RL	2700	<RL	32000					
trans-1,3-Dichloropropene	<RL	2700	<RL	32000					
Dibromochloromethane	<RL	2700	<RL	32000					
Ethylbenzene	21000	2700	970000	32000					
Methylene Chloride	<RL	5500	<RL	64000					
Styrene	<RL	2700	<RL	32000					
Tetrachloroethene	<RL	2700	<RL	32000					
Toluene	6900	2700	1200000	32000					
trans-1,2-Dichloroethene	<RL	2700	<RL	32000					
trans-1,3-Dichloropropene	<RL	2700	<RL	32000					
Trichloroethene	<RL	2700	<RL	32000					

<RL = Less Than Reporting Limit



AAL Certificate of Analysis Summary WO# 1943

Client : Roy F. Weston, Inc.- Illinois, Vernon Hills, IL

Client Project Name: Calumet Container

Client Project #: 0222

Client Contact: Rick Mehl

Project Location:

Quote Number:

Email / Fax Number:

Date Received in Lab: 05/01/02 10:20

Report Date: 05/28/02 11:10

AAL Contact: Michael Trinidad

e-Mail: miket@accura.com

Analysis Requested	<i>Lab ID :</i> <i>Field ID :</i> <i>Depth :</i> <i>Matrix :</i> <i>Sampled :</i>	1943-007 CC (2-3) SOIL 04/30/02 16:03	1943-008 CC (1-5) SOIL 04/30/02 16:32				
VOCs by SW8260B	<i>Prep. Date:</i> <i>Analyzed:</i> <i>Units:</i>	05/03/02 11:23 05/03/02 17:48 ug/kg	05/03/02 11:23 05/03/02 18:15 ug/kg	Results RL	Results RL		
Trichlorofluoromethane		<RL 2700	<RL 32000				
Vinyl Acetate		<RL 55000	<RL 640000				
Vinyl Chloride		<RL 2700	<RL 32000				
Xylenes, Total		66000 8200	3200000 96000				

<RL = Less Than Reporting Limit



PDP Analytical Services

1680 Lake Front Circle, Suite B • The Woodlands, Texas 77380 • Phone (281) 363-2233 • Fax (281) 298-5784

Chain of Custody Record

L.P.O. # 1943

Client Name / Address:

Roy Weston, Inc. 750 East Bunker Court Vernon Hills, IL 60061

Send Report to:

Kick Mehl

Client Phone #: 847-918-4041 Client Fax #: 847-918-4055

Project Number: O232

Project Name: Calumet Container

Sampler's (Signature): Ken Peter

PO Number:

Sample Identification Date Time Comp. Grab

Number of Containers Matrix

Remarks

ANAL 15

VOC (40ml)
TAL Metals (40ml)

* All samples presented with
ice water samples
with HCl.

CC (0,0)	4-30-02 1320	X	1	Soil	X
CC (0,1)	4-30-02 1330	X	1	Soil	X
CC (0,2)	1420	X	1		X
CC (0,3)	1435	X	1		X
CC (1,3)	1542	X	1		X
CC (0,4)	1450	X	1		X
CC (2,3)	1603	X	1		X
CC (1,5)	4-30-02 1632	X	2	Soil	X

Water X

Water

Water X

Water

Trip Blank

Temperature Blank

Relinquished by (Signature):

Date / Time: 4-30-02 1300

Received by (Signature):

Date / Time:

Remarks:

Relinquished by (Signature):

Date / Time: 5/1/02 10:20

Received by (Signature):

Date / Time: 5/1/02 10:20

Method of Shipment:

Federal Express

PDP Quote Number:

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

Attn: Mr. Rick Mehl/ Ms. Tonya Balla

Volatiles

ACE Technologies, Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 6/5/02

Project Name: Calumet Container

Episode #:	7913										7916				
Lab Sample ID	1	2	3	4	5	6	7	8	9	10	1	2	3	4	
Weaton Sample ID	6, 7 (3'-4')	SD-02	5, 6 (0'-6")	0, 10 (3'-4")	0, 10 (3'-4")DUP	2,8 (0'-6")	1,9 (3'-4")	1,9 (3'-4")DUP	2,8 (2'-4")	1,8 (3'-4")	3, 10 (0'-2")	1, 2 (2'-3")	0,5, 2,5 (1'-2")	0,5, 2,5 (3'-4")	
Date Sampled	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/21/02	5/21/02	5/21/02	5/21/02	
Dilution		1000									125		1		
VOA8260B	Units	RL													
1,1,1,2-Tetrachloroethane	ug/kg	5	<1300								<170		<7.3		
1,1,1-Trichloroethane	ug/kg	5	<1300								<170		<7.3		
1,1,2,2-Tetrachloroethane	ug/kg	5	<1300								<170		<7.3		
1,1,2-Trichloroethane	ug/kg	5	<1300								<170		<7.3		
1,1-Dichloroethane	ug/kg	5	<1300								<170		<7.3		
1,1-Dichloroethene	ug/kg	5	<1300								<170		<7.3		
1,1-Dichloropropene	ug/kg	5	<1300								<170		<7.3		
1,2,3-Trichlorobenzene	ug/kg	5	<1300								<170		<7.3		
1,2,3-Trichloropropane	ug/kg	5	<1300								<170		<7.3		
1,2,4-Trichlorobenzene	ug/kg	5	<1300								<170		<7.3		
1,2,4-Trimethylbenzene	ug/kg	5	18000								670		17		
1,2-Dibromo-3-chloropropane	ug/kg	5	<1300								<170		<7.3		
1,2-Dibromoethane	ug/kg	5	<1300								<170		<7.3		
1,2-Dichlorobenzene	ug/kg	5	<1300								<170		<7.3		
1,2-Dichloroethane	ug/kg	5	<1300								<170		<7.3		
1,2-Dichloropropane	ug/kg	5	<1300								<170		<7.3		
1,3,5-Trimethylbenzene	ug/kg	5	5600								200		32		
1,3-Dichlorobenzene	ug/kg	5	<1300								<170		<7.3		
1,3-Dichloropropane	ug/kg	5	<1300								<170		<7.3		
1,4-Dichlorobenzene	ug/kg	5	<1300								<170		<7.3		
1-Chlorohexane	ug/kg	5	<1300								<170		<7.3		
2,2-Dichloropropane	ug/kg	5	<1300								<170		<7.3		
2-Butanone	ug/kg	25	<6500								<870		140		
2-Chloroethyl vinyl ether	ug/kg	5	<1300								<170		<7.3		
2-Chirotoluene	ug/kg	5	<1300								<170		<7.3		
2-Hexanone	ug/kg	25	<6500								<870		<36		
4-Chlorotoluene	ug/kg	5	<1300								<170		<7.3		
4-Methyl-2-pentanone	ug/kg	25	<6500								<870		<36		
Acetone	ug/kg	25	<6500								<870		180		
Acrylonitrile	ug/kg	25	<6500								<870		<36		
Benzene	ug/kg	5	<1300								<170		<7.3		

Episode #:		7913										7916				
Lab Sample ID		1	2	3	4	5	6	7	8	9	10	1	2	3	4	
Calumet Sample ID		6, 7	SD-02	5, 6	0, 10	0, 10	2,8	1,9	1,9	2,8	1,8	3,10	1,2	0,5, 2,5	0,5, 2,5	
		(3'-4')		(0-6")	(3'-4")	(3'-4")DUP	(0-6")	(3'-4")	(3'-4")DUP	(2'-4')	(3'-4')	(0-2")	(2-3")	(1'-2")	(3'-4")	
Date Sampled		5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/21/02	5/21/02	5/21/02	5/21/02	
Dilution		1000								125		1				
Units	RL															
VOA8260B(Contd....)																
Bromobenzene	ug/kg	5	<1300							<170		<7.3				
Bromoform	ug/kg	5	<1300							<170		<7.3				
Bromochloromethane	ug/kg	5	<1300							<170		<7.3				
Bromodichloromethane	ug/kg	5	<1300							<170		<7.3				
Bromomethane	ug/kg	5	<1300							<170		<7.3				
Carbon disulfide	ug/kg	5	<1300							<170		<7.3				
Carbon tetrachloride	ug/kg	5	<1300							<170		<7.3				
Chlorobenzene	ug/kg	5	<1300							<170		<7.3				
Chloroethane	ug/kg	5	<1300							<170		<7.3				
Chloroform	ug/kg	5	<1300							<170		<7.3				
Chloromethane	ug/kg	5	<1300							<170		<7.3				
cis-1,2-Dichloroethene	ug/kg	5	<1300							<170		<7.3				
cis-1,3-Dichloropropene	ug/kg	5	<1300							<170		<7.3				
Dibromochloromethane	ug/kg	5	<1300							<170		<7.3				
Dibromomethane	ug/kg	5	<1300							<170		<7.3				
Dichlorodifluoromethane	ug/kg	5	<1300							<170		<7.3				
Ethyl benzene	ug/kg	5	14000							550		<7.3				
Hexachlorobutadiene	ug/kg	5	<1300							<170		<7.3				
Iodomethane	ug/kg	5	<1300							<170		<7.3				
Isopropylbenzene	ug/kg	5	1100							<170		<7.3				
m/p-xylene	ug/kg	10	57000							2200		71				
Methyl t-Butylether	ug/kg	5	<1300							<170		<7.3				
Methylene chloride	ug/kg	5	<1300							<170		<7.3				
n-Butylbenzene	ug/kg	5	2400							220		<7.3				
n-Propylbenzene	ug/kg	5	2000							<170		<7.3				
Naphthalene	ug/kg	5	8600							580		12				
o-Xylene	ug/kg	5	18000							740		52				
p-Isopropyltoluene	ug/kg	5	1300							<170		<7.3				
sec-Butylbenzene	ug/kg	5	<1300							<170		<7.3				
Styrene	ug/kg	5	<1300							<170		<7.3				
tert-Butylbenzene	ug/kg	5	<1300							<170		<7.3				
Tetrachloroethene	ug/kg	5	<1300							<170		<7.3				
Toluene	ug/kg	5	1200							<170		<7.3				
trans-1,2-Dichloroethene	ug/kg	5	<1300							<170		<7.3				
trans-1,3-Dichloropropene	ug/kg	5	<1300							<170		<7.3				
Trichloroethene	ug/kg	5	<1300							<170		<7.3				
Trichlorofluoromethane	ug/kg	5	<1300							<170		<7.3				
Vinyl Acetate	ug/kg	25	<33000							<4300		<36				
Vinyl chloride	ug/kg	5	<1300							<170		<7.3				

Roy F Weston, Inc. 750 E Bunker Ct, Suite 500 Vernon Hills, IL 60061 Tel: (847) 918-4041 Fax: (847) 918-4055										ACE Technologies, Inc. 1680 Lake Front Circle, Ste. B The Woodlands, TX 78130 Phone: (281) 363-2233 Fax : (281) 298-5784 Date: 6/5/02					
Attn: Mr. Rick Mehl/ Ms. Tonya Balla										BTEX					
Episode #: 7913										7916					
Lab Sample ID 1 2 3 4 5 6 7 8 9 10										1 2 3 4					
Weaton Sample ID 6, 7 SD-02 5, 6 0, 10 0, 10 2,8 1,9 1,9 2, 8 1, 8 3, 10 1, 2 0,5, 2,5 0,5, 2,5										(3'-4') (0-6") (3'-4") (3'-4")DUP (0-6") (3'-4") (3'-4")DUP (2"-4") (3"-4") (0-2") (2-3") (1"-2") (3"-4")					
Date Sampled 5/20/02 5/20/02 5/20/02 5/20/02 5/20/02 5/20/02 5/20/02 5/20/02 5/20/02 5/20/02 5/21/02 5/21/02 5/21/02 5/21/02 5/21/02										5/20/02 5/21/02 5/21/02 5/21/02 5/21/02 5/21/02					
Dilution Units RL										1000 (Medium Level)					
B-Tex										<1200 <1100					
Benzene ug/kg 1250										45000 56000					
Ethyl benzene ug/kg 1250										12000 1700					
Toluene ug/kg 1250										<1200 <1100					
Xylene (total) ug/kg 1250															

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

ACE Technologies, Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 6/5/02

PESTICIDED & PCB'S

Attn: Mr. Rick Mehl/ Ms. Tonya Balla

Project Name: Calumet Container

Episode #:	7913										7916				
Lab Sample ID	1	2	3	4	5	6	7	8	9	10	1	2	3	4	
Weaton Sample ID	6, 7 (3'-4')	SD-02	5, 6 (0-6")	0, 10 (3'-4")	0, 10 (3'-4")DUP	2, 8 (0-6")	1, 9 (3'-4")	1, 9 (3'-4")DUP	2, 8 (2'-4")	1, 8 (3'-4")	3, 10 (0-2")	1, 2 (2-3")	0, 5, 2, 5 (1'-2")	0, 5, 2, 5 (3'-4")	
Date Sampled	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/21/02	5/21/02	5/21/02	5/21/02	
Units	RL														
Pesticides															
4,4'-DDD	ug/kg	3.3	<4.3								<4.6		<4.3		
4,4'-DDE	ug/kg	3.3	<4.3								50		<4.3		
4,4'-DDT	ug/kg	3.3	61								78		<4.3		
Aldrin	ug/kg	1.7	<2.2								<2.3		<2.2		
alpha-BHC	ug/kg	1.7	<2.2								<2.3		<2.2		
beta-BHC	ug/kg	1.7	<2.2								<2.3		<2.2		
Chlordane (Technical)	ug/kg	3.3	80								<4.6		17		
delta-BHC	ug/kg	1.7	<2.2								<2.3		<2.2		
Dieldrin	ug/kg	3.3	<4.3								<4.6		2.3		
Endosulfan II	ug/kg	3.3	<4.3								<4.6		<4.3		
Endosulfan sulfate	ug/kg	3.3	<4.3								<4.6		<4.3		
Endosulfan-I	ug/kg	1.7	26								<2.3		15		
Endrin	ug/kg	3.3	<4.3								<4.6		<4.3		
Endrin aldehyde	ug/kg	3.3	<4.3								<4.6		<4.3		
Endrin ketone	ug/kg	3.3	<4.3								<4.6		<4.3		
gamma-BHC	ug/kg	1.7	<2.2								<2.3		<2.2		
Heptachlor	ug/kg	1.7	<2.2								<2.3		<2.2		
Heptachlor epoxide	ug/kg	1.7	<2.2								<2.3		<2.2		
Methoxychlor	ug/kg	17	<22								<23		<22		
Toxaphene	ug/kg	33	<43								<46		<43		
PCB's															
Aroclor 1016	ug/kg	33	<43								<46		<43		
Aroclor 1221	ug/kg	33	<43								<46		<43		
Aroclor 1232	ug/kg	33	<43								<46		<43		
Aroclor 1242	ug/kg	33	<43								<46		<43		
Aroclor 1248	ug/kg	33	<43								<46		<43		
Aroclor 1254	ug/kg	33	<43								<46		<43		
Aroclor 1260	ug/kg	33	<43								<46		<43		

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

ACE Technologies, Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 6/5/02

Attn: Mr. Rick Mehl/ Ms. Tonya Balla

Semi Volatiles

Project Name: Calumet Container

Episode #:	7913										7916				
Lab Sample ID	1	2	3	4	5	6	7	8	9	10	1	2	3	4	
Weaton Sample ID	6, 7 (3'-4')	SD-02	5, 6 (0-6")	0, 10 (3'-4")	0, 10 (3'-4")DUP	2,8 (0-6")	1,9 (3'-4")	1,9 (3'-4")DUP	2,8 (2'-4")	1,8 (3'-4")	3, 10 (0-2")	1, 2 (2-3")	0,5, 2,5 (1'-2")	0,5, 2,5 (3'-4")	
Date Sampled	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/21/02	5/21/02	5/21/02	5/21/02	
Dilution	20									20		20			
Units	RL														
SVOA 8270C															
1,2,4-Trichlorobenzene	UG/L	330	<8700								<9200		<8700		
1,2-Dichlorobenzene	UG/L	330	<8700								<9200		<8700		
1,3-Dichlorobenzene	UG/L	330	<8700								<9200		<8700		
1,4-Dichlorobenzene	UG/L	330	<8700								<9200		<8700		
2,2'-oxybis (1-Chloropropane)	UG/L	330	<8700								<9200		<8700		
2,4,5-Trichlorophenol	UG/L	830	<22000								<23000		<22000		
2,4,6-Trichlorophenol	UG/L	330	<8700								<9200		<8700		
2,4-Dichlorophenol	UG/L	330	<8700								<9200		<8700		
2,4-Dimethylphenol	UG/L	330	<8700								<9200		<8700		
2,4-Dinitrophenol	UG/L	830	<22000								<23000		<22000		
2,4-Dinitrotoluene	UG/L	330	<8700								<9200		<8700		
2,6-Dinitrotoluene	UG/L	330	<8700								<9200		<8700		
2-Chloronaphthalene	UG/L	330	<8700								<9200		<8700		
2-Chlorophenol	UG/L	330	<8700								<9200		<8700		
2-Methylnaphthalene	UG/L	330	<8700								<9200		<8700		
2-Methylphenol	UG/L	330	<8700								<9200		<8700		
2-Nitroaniline	UG/L	830	<22000								<23000		<22000		
2-Nitrophenol	UG/L	330	<8700								<9200		<8700		
3,3'-Dichlorobenzidine	UG/L	330	<8700								<9200		<8700		
3-Nitroaniline	UG/L	830	<22000								<23000		<22000		
4,6-Dinitro-2-methylphenol	UG/L	830	<22000								<23000		<22000		
4-Bromophenyl phenyl ether	UG/L	330	<8700								<9200		<8700		
4-Chloro-3-methylphenol	UG/L	330	<8700								<9200		<8700		
4-Chloroaniline	UG/L	330	<8700								<9200		<8700		
4-Chlorophenyl phenyl ether	UG/L	330	<8700								<9200		<8700		
4-Methylphenol	UG/L	330	<8700								<9200		<8700		
4-Nitroaniline	UG/L	830	<22000								<23000		<22000		
4-Nitrophenol	UG/L	830	<22000								<23000		<22000		
Acenaphthene	UG/L	330	<8700								<9200		<8700		
Acenaphthylene	UG/L	330	<8700								<9200		<8700		
Anthracene	UG/L	330	<8700								<9200		<8700		

Episode #:			7913											7916			
Lab Sample ID			1	2	3	4	5	6	7	8	9	10		1	2	3	4
Weaton Sample ID			6, 7 (3'-4')	SD-02	5, 6 (0-6")	0, 10 (3'-4')	0, 10 (3'-4")DUP	2,8 (0-6")	1,9 (3'-4')	1,9 (3'-4")DUP	2,8 (2'-4")	1,8 (3'-4')	3, 10 (0-2")	1, 2 (2-3")	0,5, 2,5 (1'-2")	0,5, 2,5 (3'-4")	
Date Sampled			5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/20/02	5/21/02	5/21/02	5/21/02	5/21/02	
Dilution			20								20		20				
SVOA 8270C(Contd....)	Units	RL															
Benzo(a)anthracene	UG/L	330	<8700									<9200		<8700			
Benzo(a)pyrene	UG/L	330	<8700									<9200		<8700			
Benzo(b)fluoranthene	UG/L	330	<8700									<9200		<8700			
Benzo(g,h,i)perylene	UG/L	330	<8700									<9200		<8700			
Benzo(k)fluoranthene	UG/L	330	<8700									<9200		<8700			
Benzoic acid	UG/L	830	<22000									<23000		<22000			
Benzyl alcohol	UG/L	830	<22000									<23000		<22000			
Bis(2-chloroethoxy)methane	UG/L	330	<8700									<9200		<8700			
Bis(2-chloroethyl)ether	UG/L	330	<8700									<9200		<8700			
Bis(2-chloroisopropyl) ether	UG/L	330	<8700									<9200		<8700			
Bis(2-ethylhexyl)phthalate	UG/L	330	<8700									<9200		<8700			
Butylbenzylphthalate	UG/L	330	<8700									<9200		<8700			
Carbazole	UG/L	330	<8700									<9200		<8700			
Chrysene	UG/L	330	<8700									<9200		<8700			
Di-n-butylphthalate	UG/L	330	<8700									<9200		<8700			
Di-n-octylphthalate	UG/L	330	<8700									<9200		<8700			
Dibenzo(a,h)anthracene	UG/L	330	<8700									<9200		<8700			
Dibenzofuran	UG/L	330	<8700									<9200		<8700			
Diethylphthalate	UG/L	330	<8700									<9200		<8700			
Dimethylphthalate	UG/L	330	<8700									<9200		<8700			
Fluoranthene	UG/L	330	<8700									<9200		<8700			
Fluorene	UG/L	330	<8700									<9200		<8700			
Hexachlorobenzene	UG/L	330	<8700									<9200		<8700			
Hexachlorobutadiene	UG/L	330	<8700									<9200		<8700			
Hexachlorocyclopentadiene	UG/L	330	<8700									<9200		<8700			
Hexachloroethane	UG/L	330	<8700									<9200		<8700			
Indeno(1,2,3-c,d)pyrene	UG/L	330	<8700									<9200		<8700			
Isophorone	UG/L	330	<8700									<9200		<8700			
N-Nitroso-di-n-propylamine	UG/L	330	<8700									<9200		<8700			
N-Nitrosodimethylamine	UG/L	330	<8700									<9200		<8700			
N-Nitrosodiphenylamine	UG/L	330	<8700									<9200		<8700			
Naphthalene	UG/L	330	<8700									<9200		<8700			
Nitrobenzene	UG/L	330	<8700									<9200		<8700			
Pentachlorophenol	UG/L	830	<22000									<23000		<22000			
Phenanthrene	UG/L	330	<8700									<9200		<8700			
Phenol	UG/L	330	<8700									<9200		<8700			
Pyrene	UG/L	330	<8700									<9200		<8700			

Roy F Weston, Inc.

750 E Bunker Ct, Suite 500

Vernon Hills, IL 60061

Tel: (847) 918-4041

Fax: (847) 918-4055

Attn: Mr. Rick Mehl/ Ms. Tonya Balla

Metals

ACE Technologies, Inc.

1680 Lake Front Circle, Ste. B

The Woodlands, TX 78130

Phone: (281) 363-2233

Fax : (281) 298-5784

Date: 6/5/02



PDP Analytical Services
1680 Lake Front Circle, Suite B • The Woodlands, Texas 77380 • Phone (281) 363-2233 • Fax (281) 298-5784

Chain of Custody Record

Client Name / Address:

WESTON, Inc., 750 E Banker Ct, Ste 500, Vernon Hills, IL 60061
Rick MEHL / Linda KORNBLUM

Send Report to:

Client Phone #: 847-918-4041
Client Fax #: 847-918-4055

Project Number: 222
Project Name: Column Container

Sample(s) Signature:
John & Kelly Pankett

PO. Number:

Date:

Time:

Comp.

Number of Containers

Matrix

Total Lead
TAL Metals
PCB / PEST
SVOC
VOC
CST Moisture

Remarks

Sample identification	Date	Time	Comp.	Grab	Number of Containers	Matrix	Total Lead TAL Metals PCB / PEST SVOC VOC CST Moisture	Remarks
6,7 - 15	5/20/02	10:10	X	X	5	Soil	✓ ✓ ✓ ✓ ✓ ✓	7913 .001
SD-02	5/20/02	09:20	X	1	Soil	✓		.002
5,6 (0-6")	5/20/02	11:20	X	1	Soil	✓		.003
C,10 (3'-4')	5/20/02	11:50	X	1	Soil	✓		.004
0,10 (3'-4') DUP	5/20/02	11:50	X	1	Soil	✓		.005
2.8 (0-6")	5/20/02	14:45	X	1	Soil	✓		.006
1,9 (3'-4')	5/20/02	11:35	X	1	Soil	✓		.007
1,9 (3'-4') DUP	5/20/02	11:35	X	1	Soil	✓		.008
2.8 (2'-4')	5/20/02	14:45	X	5	Soil	✓ ✓ ✓ ✓ ✓		.009
1.8 (3'-4')	5/20/02	15:00	X	1	Soil	✓		.010

Released by (Signature)

Date / Time

Received by (Signature)

Date / Time

Remarks:

Released by (Signature)

Date / Time

Received by (Signature)

Date / Time

Remarks:

Released by (Signature)

Date / Time

Received by (Signature)

Date / Time

Remarks:

Method of Shipment:



BRITISH JOURNAL

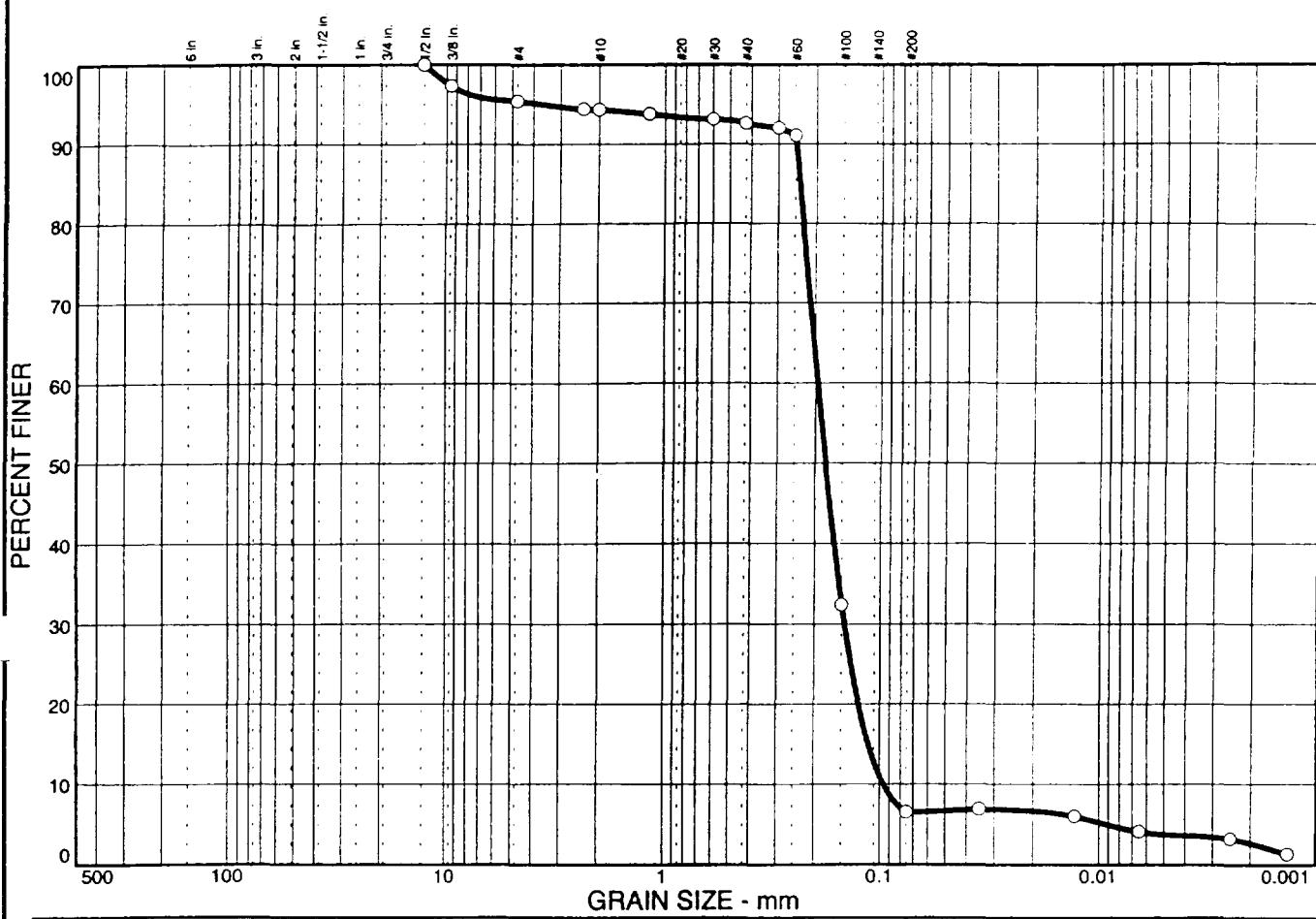
16801 aka Front Circle, Suite B ■ The Woodlands, Texas 77380 ■ Phone (281) 363-2233 ■ Fax (281) 298-5784

Chain of Custody Record

APPENDIX D

GEOTECH SAMPLE DATA RESULTS

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.6	88.9	2.7	3.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in.	100.0		
3/8 in.	97.3		
#4	95.4		
#8	94.4		
#10	94.3		
#16	93.8		
#30	93.1		
#40	92.6		
#50	92.0		
#60	91.1		
#100	32.4		
#200	6.5		

* (no specification provided)

Soil Description

Brown Fine to Coarse SAND & GRAVEL, Trace Silt

Atterberg Limits
PL= --- LL= --- PI= ---

Coefficients
D₈₅= 0.238 D₆₀= 0.195 D₅₀= 0.179
D₃₀= 0.146 D₁₅= 0.113 D₁₀= 0.0960
C_u= 2.04 C_c= 1.13

Classification
USCS= SP-SM AASHTO= A-3

Remarks

Tests by: D. Arenander
Checked by: M. Schultz

Sample No.: 3" ST: 1 to 10 ft
Location: ---

Source of Sample: Shelby Tube

Date: 6/5/02

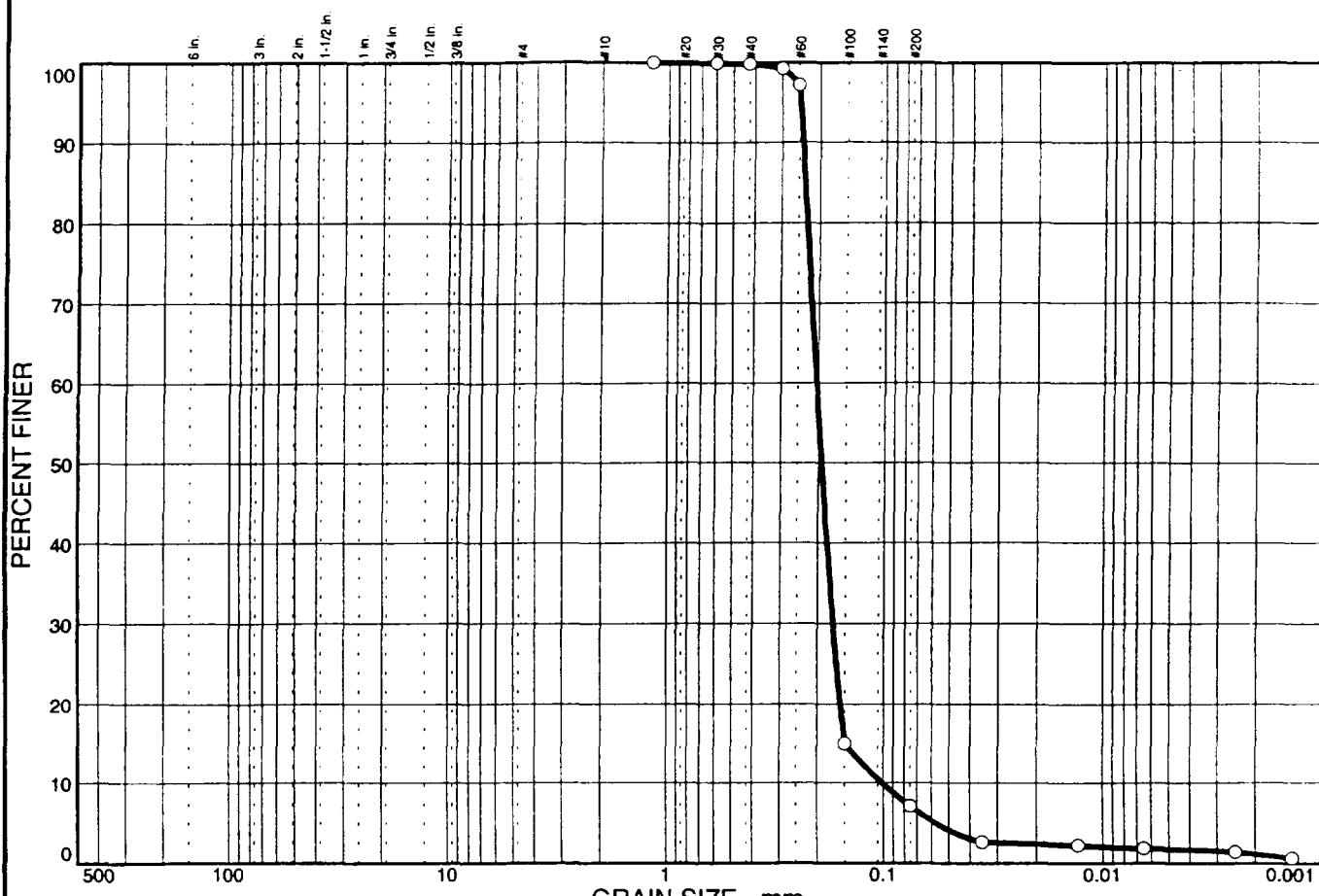
Elev./Depth: ---

CGC, Inc.

Client: Roy F. Weston
Project: Calumet Container
Job #0222
Project No: C02038-4

Plate

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	92.9	5.4	1.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100.0		
#30	99.9		
#40	99.8		
#50	99.2		
#60	97.2		
#100	14.9		
#200	7.1		

Soil Description
Brown Fine SAND, Little Silt, Trace Clay

Atterberg Limits
PL= --- LL= --- PI= ---

Coefficients
 $D_{85}=0.234$ $D_{60}=0.205$ $D_{50}=0.194$
 $D_{30}=0.170$ $D_{15}=0.150$ $D_{10}=0.101$
 $C_u=2.03$ $C_c=1.40$

Classification
USCS= SP-SM AASHTO= A-3

Remarks
Tests by: D. Arenander
Checked by: M. Schultz

* (no specification provided)

Sample No.: 3" ST: 1 to 8 ft
Location: ---

Source of Sample: Shelby Tube

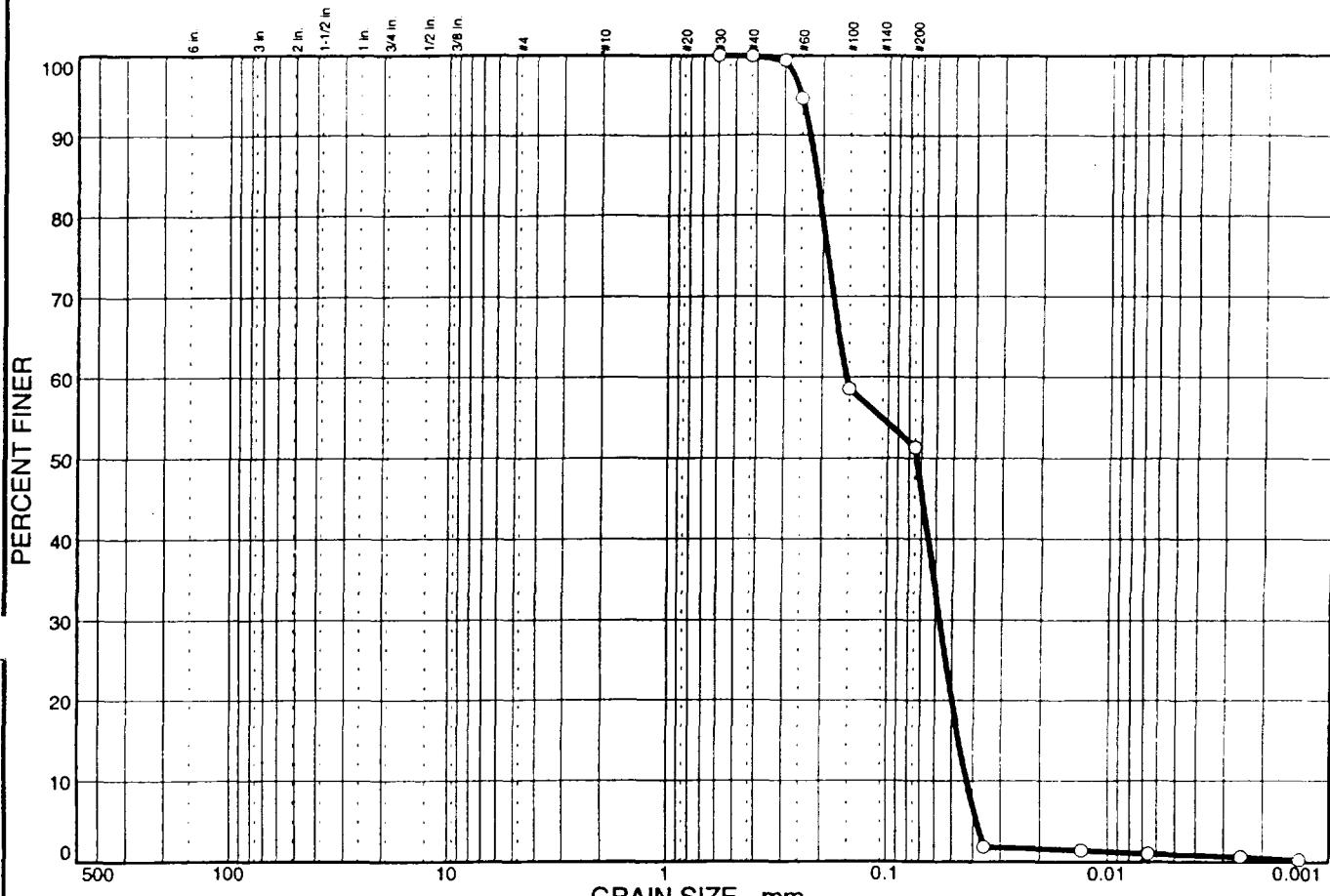
Date: 6/5/02
Elev./Depth: ---

Client: Roy F. Weston
Project: Calumet Container
Job #0222
Project No: C02038-4

CGC, Inc.

Plate

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	48.7	50.4	0.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#30	100.0		
#40	99.9		
#50	99.4		
#60	94.6		
#100	58.5		
#200	51.3		

* (no specification provided)

Soil Description
Brown Fine SAND, Little Silt, Trace Clay

Atterberg Limits
PL= --- LL= --- PI= ---

Coefficients
 $D_{85}=0.214$ $D_{60}=0.154$ $D_{50}=0.0738$
 $D_{30}=0.0575$ $D_{15}=0.0464$ $D_{10}=0.0426$
 $C_u=3.62$ $C_c=0.50$

Classification
USCS= ML AASHTO= A-4(0)

Remarks
Tests by: D. Arenander
Checked by: M. Schultz

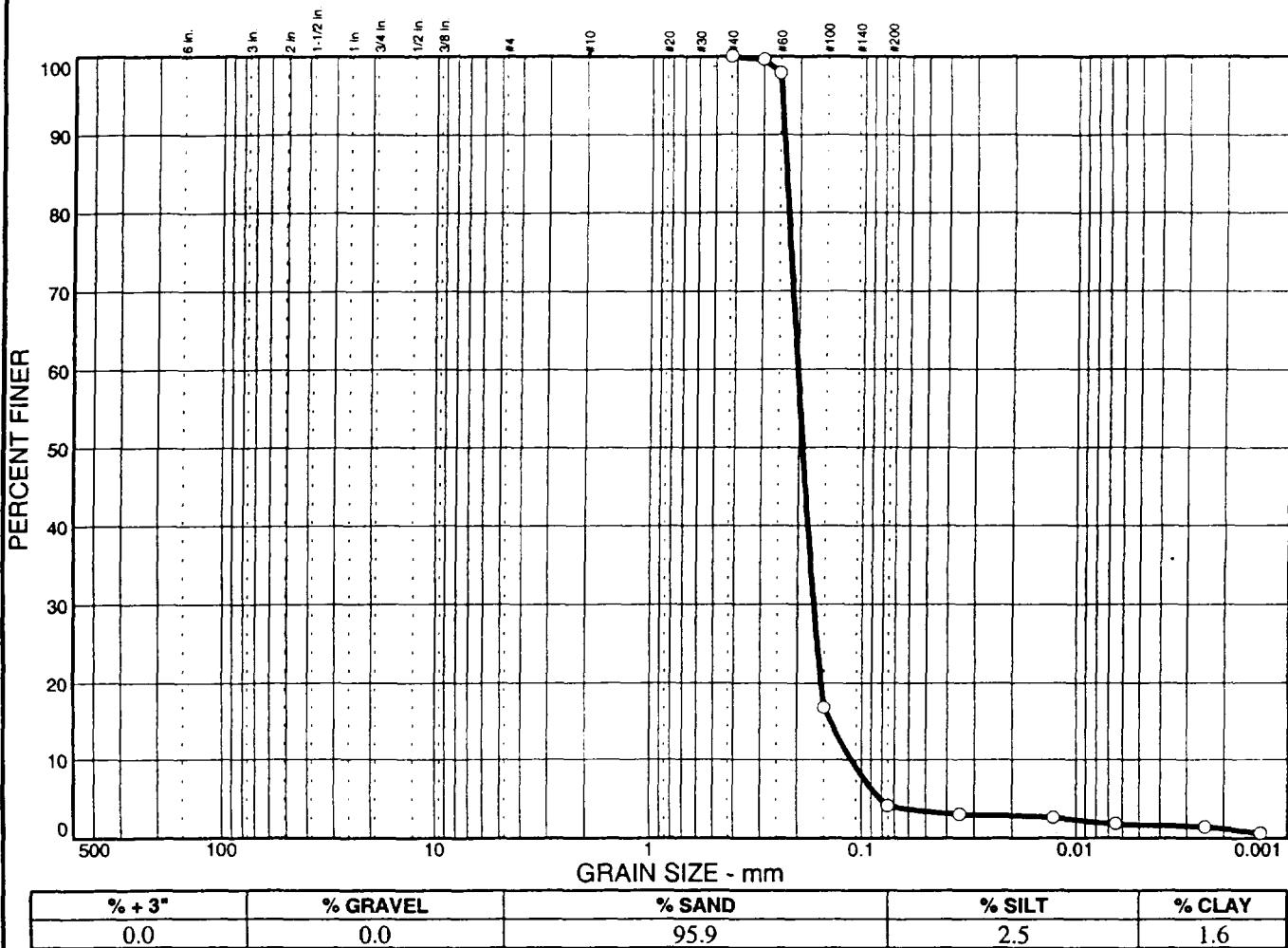
Sample No.: 3" ST: 1 to 6 ft
Location: ---

Source of Sample: Shelby Tube

Date: 6/5/02
Elev./Depth: ---

CGC, Inc.	Client: Roy F. Weston Project: Calumet Container Job #0222 Project No: C02038-4	Plate
------------------	---	--------------

PARTICLE SIZE DISTRIBUTION TEST REPORT



% + 3"	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	95.9	2.5	1.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#40	100.0		
#50	99.6		
#60	97.9		
#100	16.8		
#200	4.1		

<u>Soil Description</u>		
Brown Fine SAND, Trace Silt		
Atterberg Limits		
PL= ...	LL= ...	PI= ...
Coefficients		
D ₈₅ = 0.234	D ₆₀ = 0.204	D ₅₀ = 0.192
D ₃₀ = 0.168	D ₁₅ = 0.140	D ₁₀ = 0.111
C _U = 1.83	C _C = 1.24	
<u>Classification</u>		
USCS= SP		AASHTO= A-3
<u>Remarks</u>		
Tests by: D. Arenander Checked by: M. Schultz		

* (no specification provided)

Sample No.: 3" ST: 1 to 5 ft
Location: ---

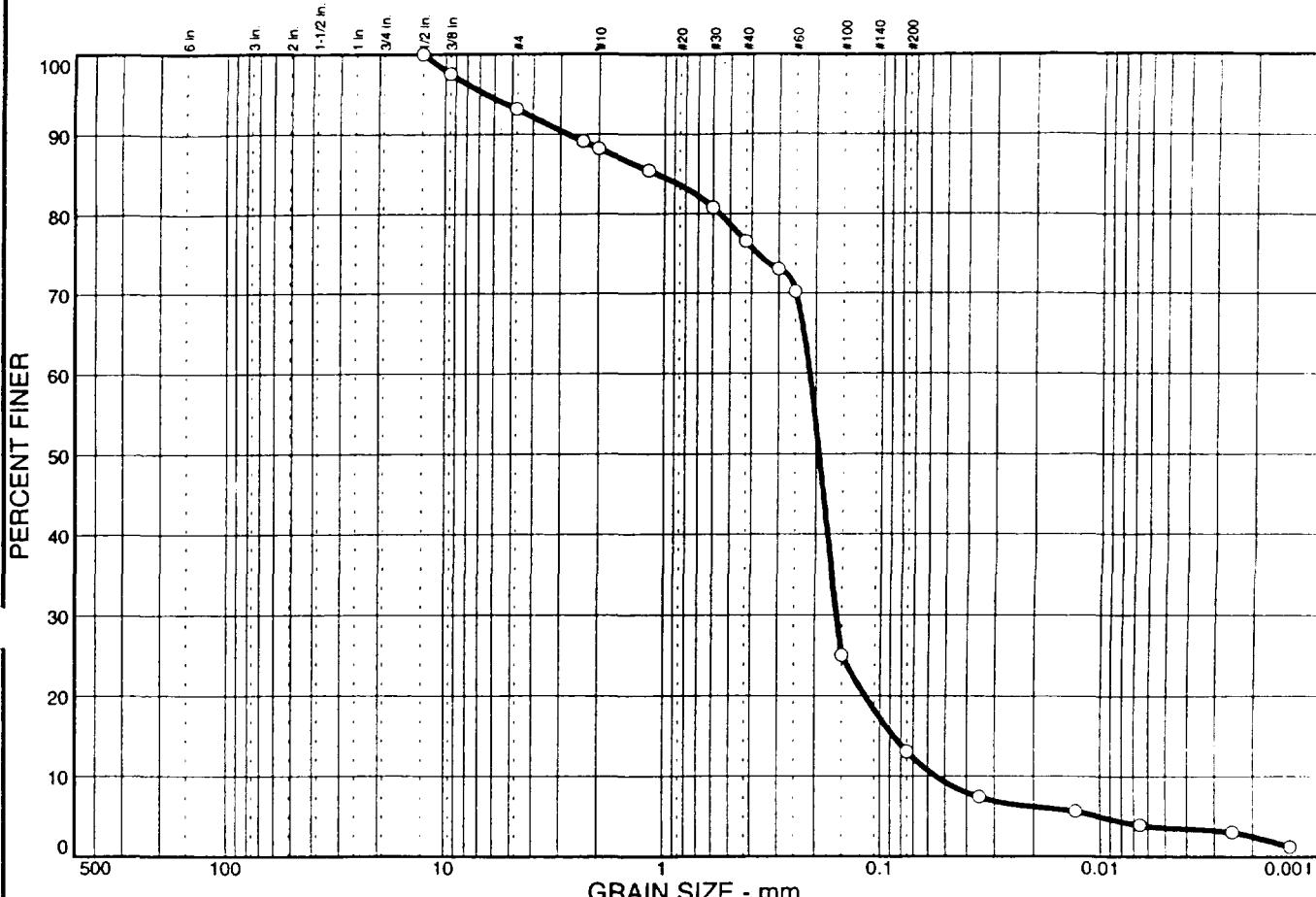
Source of Sample: Shelby Tube

Date: 6/5/02

Elev./Depth: ---

CGC, Inc.	Client: Roy F. Weston Project: Calumet Container Job #0222	Project No: C02038-4	Plate
------------------	--	----------------------	-------

PARTICLE SIZE DISTRIBUTION TEST REPORT



SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2 in.	100.0		
3/8 in.	97.5		
#4	93.1		
#8	89.1		
#10	88.2		
#16	85.4		
#30	80.8		
#40	76.5		
#50	73.0		
#60	70.2		
#100	25.0		
#200	13.1		

* (no specification provided)

Soil Description
Brown Fine to Coarse SAND, Little Silt & Gravel, Trace Clay

Atterberg Limits
PL= --- LL= --- PI= ---

Coefficients
 $D_{85}=1.09$ $D_{60}=0.215$ $D_{50}=0.194$
 $D_{30}=0.159$ $D_{15}=0.0863$ $D_{10}=0.0549$
 $C_u=3.91$ $C_c=2.15$

Classification
USCS= SM AASHTO= A-2-4(0)

Remarks
Tests by: D. Arenander
Checked by: M. Schultz

Sample No.: 3" ST: 1.5 to 3.5 ft Source of Sample: Shelby Tube
Location: ---

Date: 6/5/02
Elev./Depth: ---

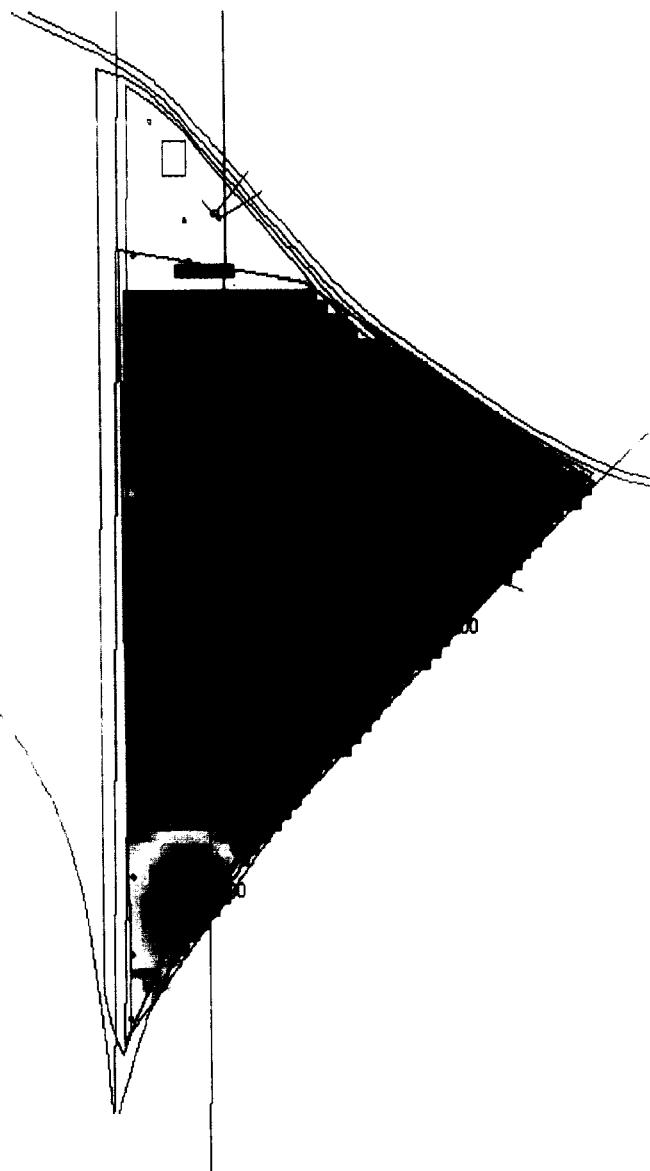
CGC, Inc.	Client: Roy F. Weston Project: Calumet Container Job #0222 Project No: C02038-4	Plate
------------------	---	--------------

APPENDIX E

SADA EXTENT OF CONTAMINATION PLOTS

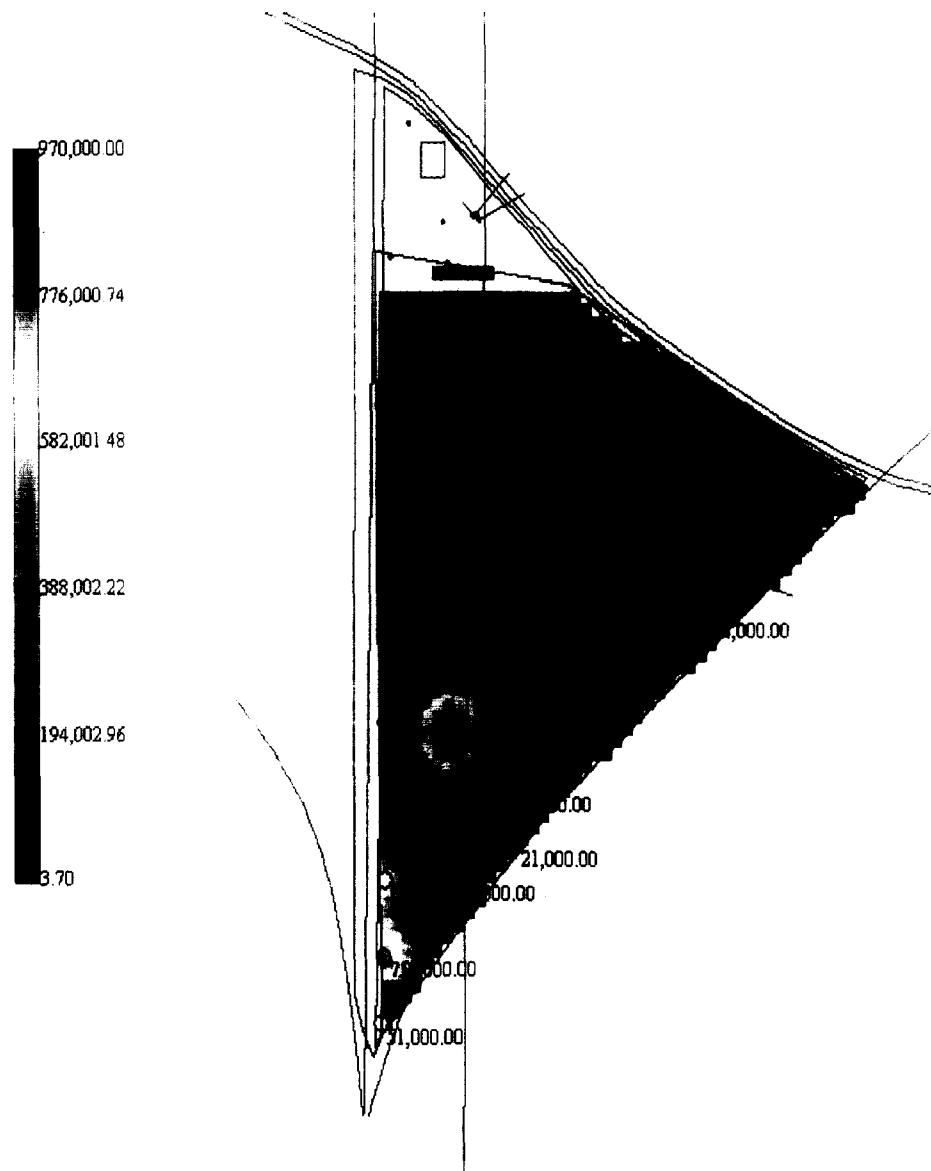
Calumet Container Site
SADA Plot
Extent of Contamination:

Benzene (ug/kg)



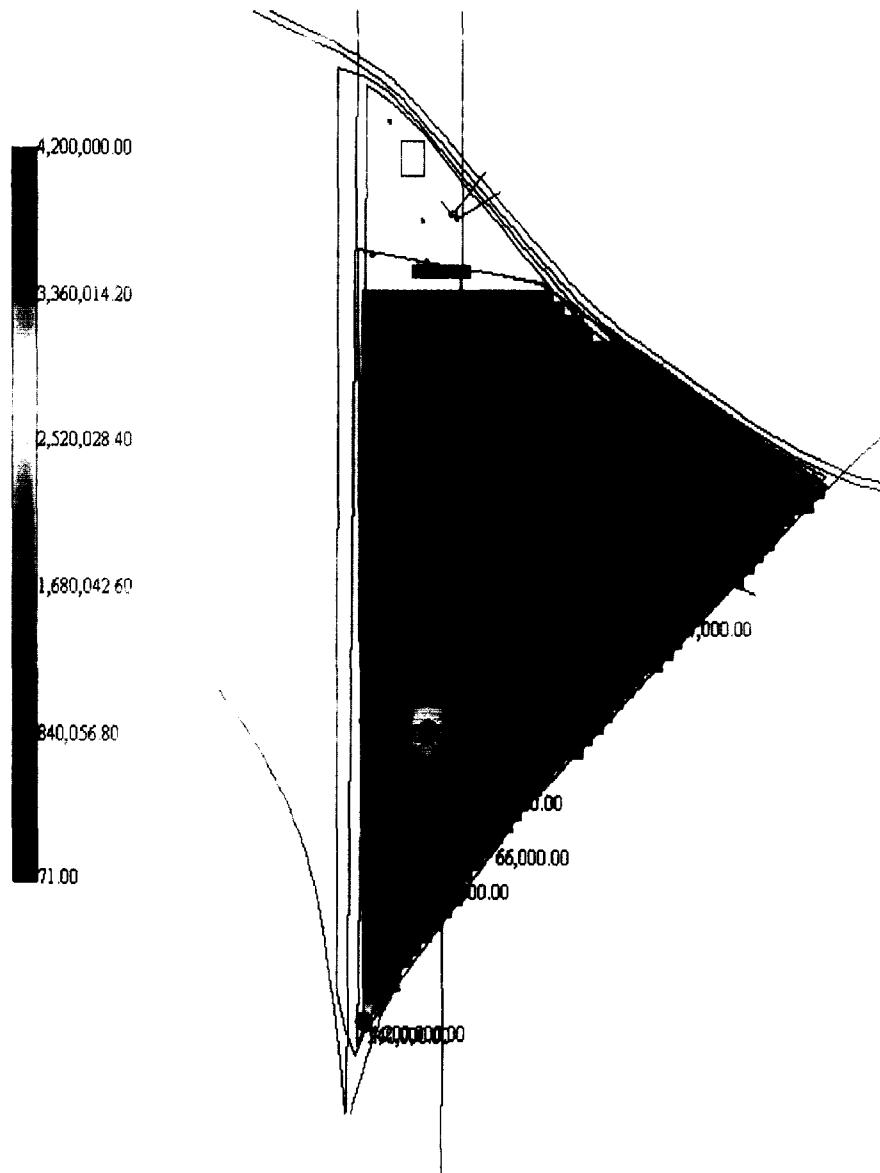
Calumet Container Site
SADA Plot
Extent of Contamination:

Ethylbenzene (ug/kg)



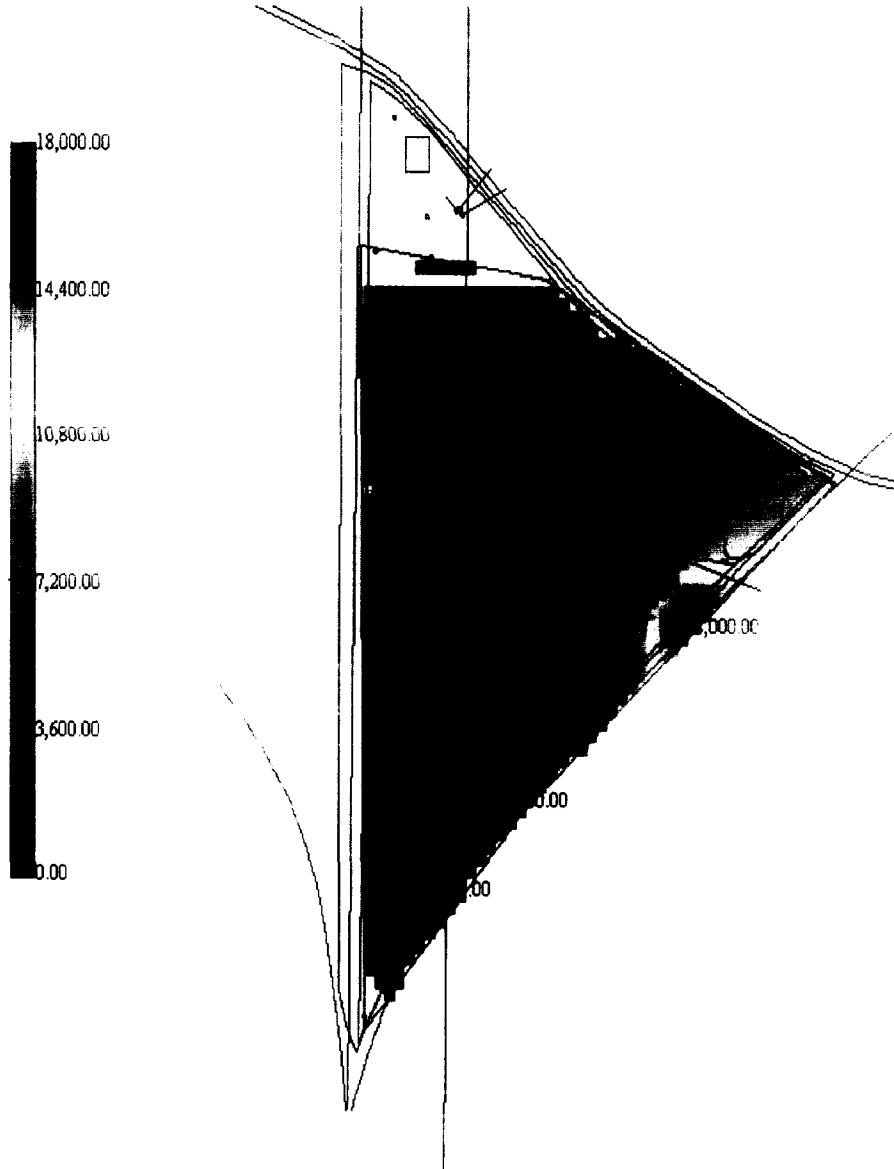
Calumet Container Site
SADA Plot
Extent of Contamination:

m-p Xylene (ug/kg)



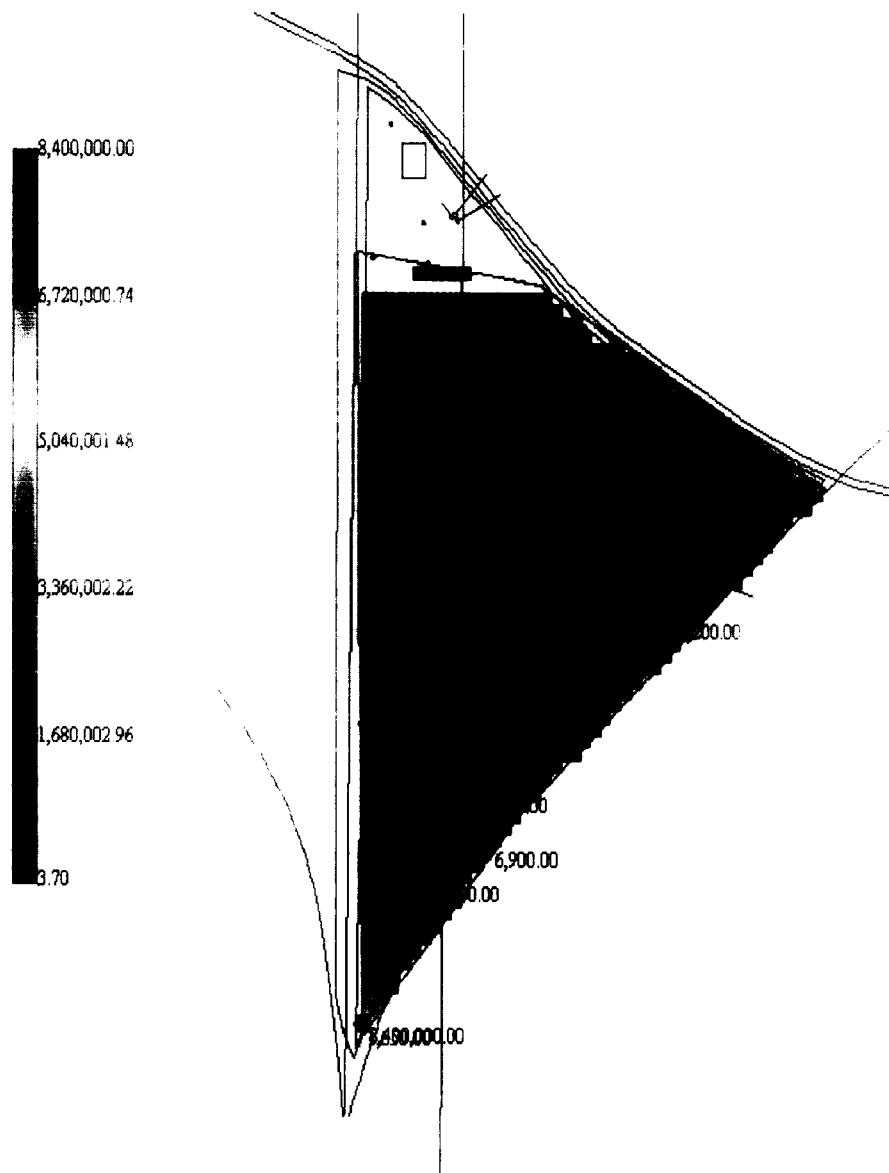
Calumet Container Site
SADA Plot
Extent of Contamination:

o-Xylene (ug/kg)



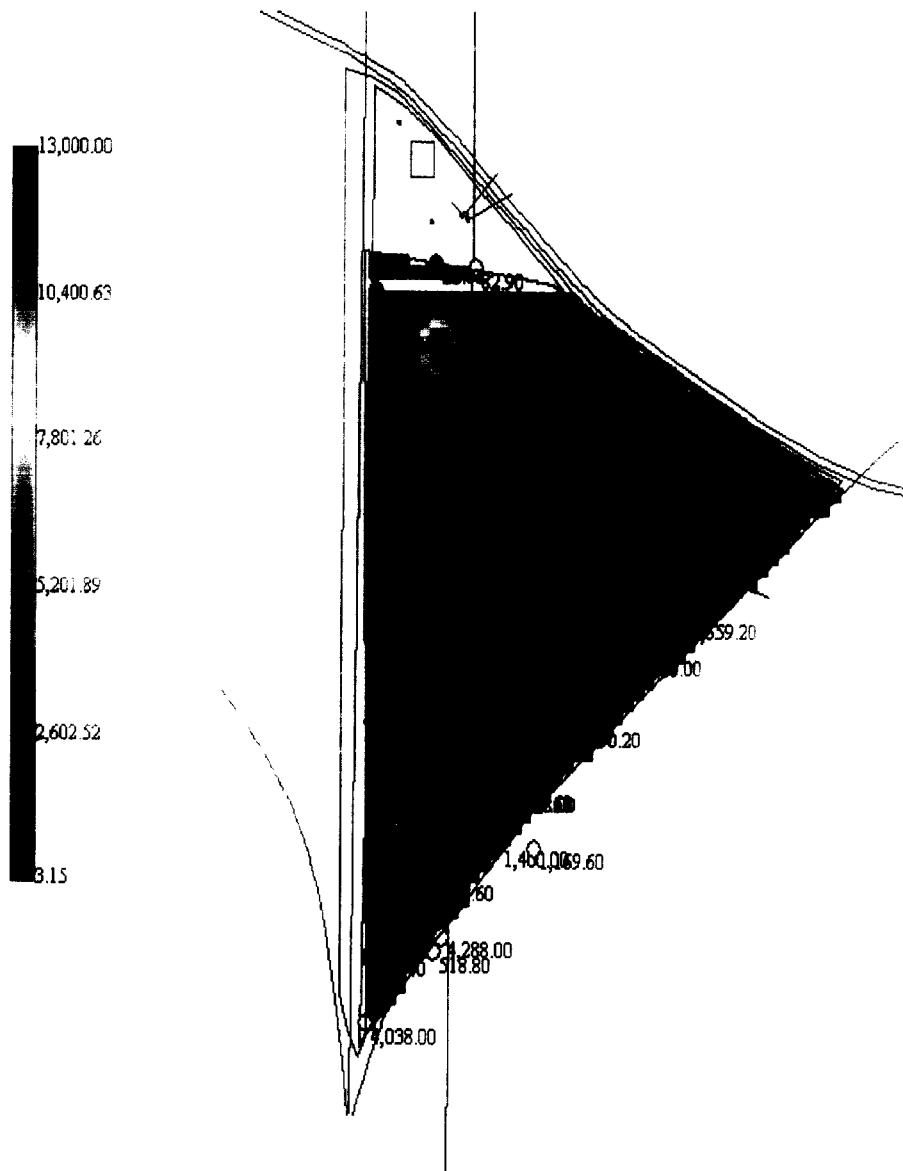
Calumet Container Site
SADA Plot
Extent of Contamination:

Toluene (ug/kg)



Calumet Container Site
SADA Plot
Extent of Contamination:

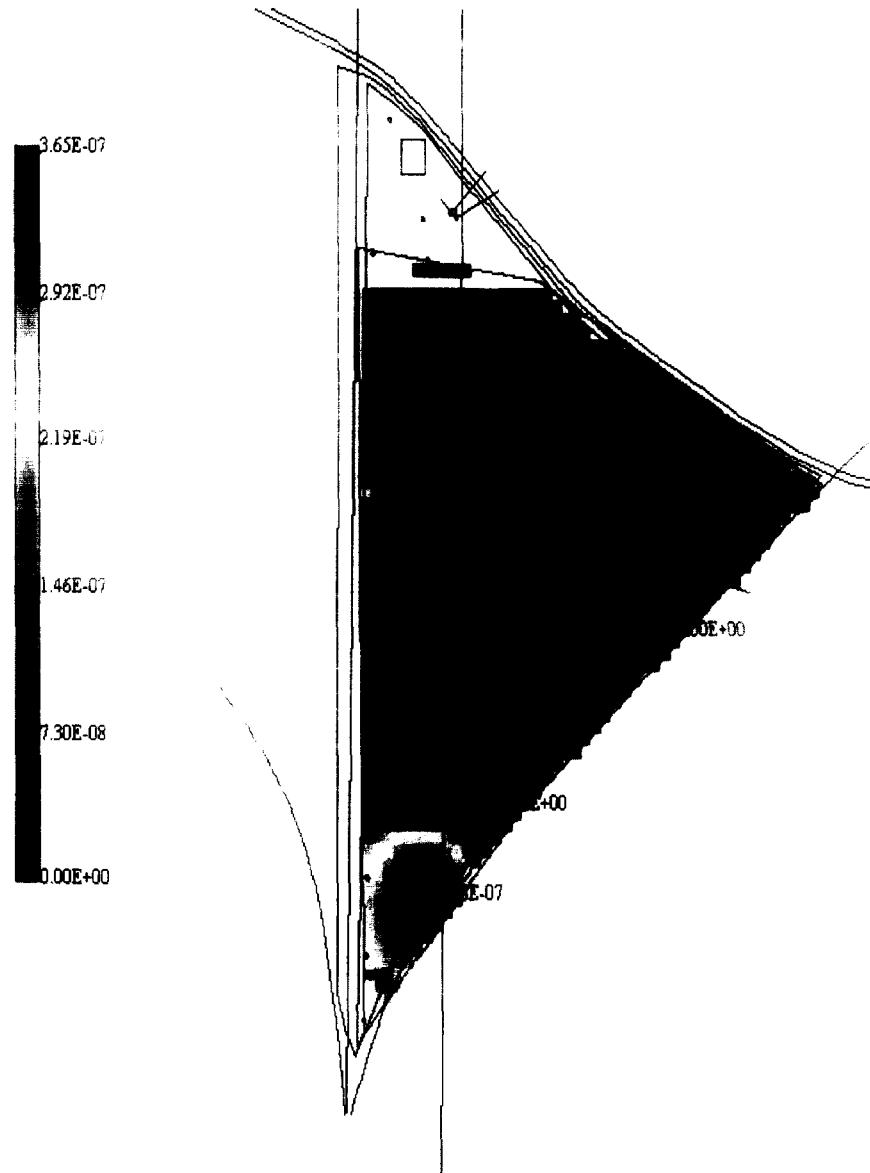
Lead (mg/kg)



APPENDIX F
SADA HUMAN HEALTH RISK PLOTS

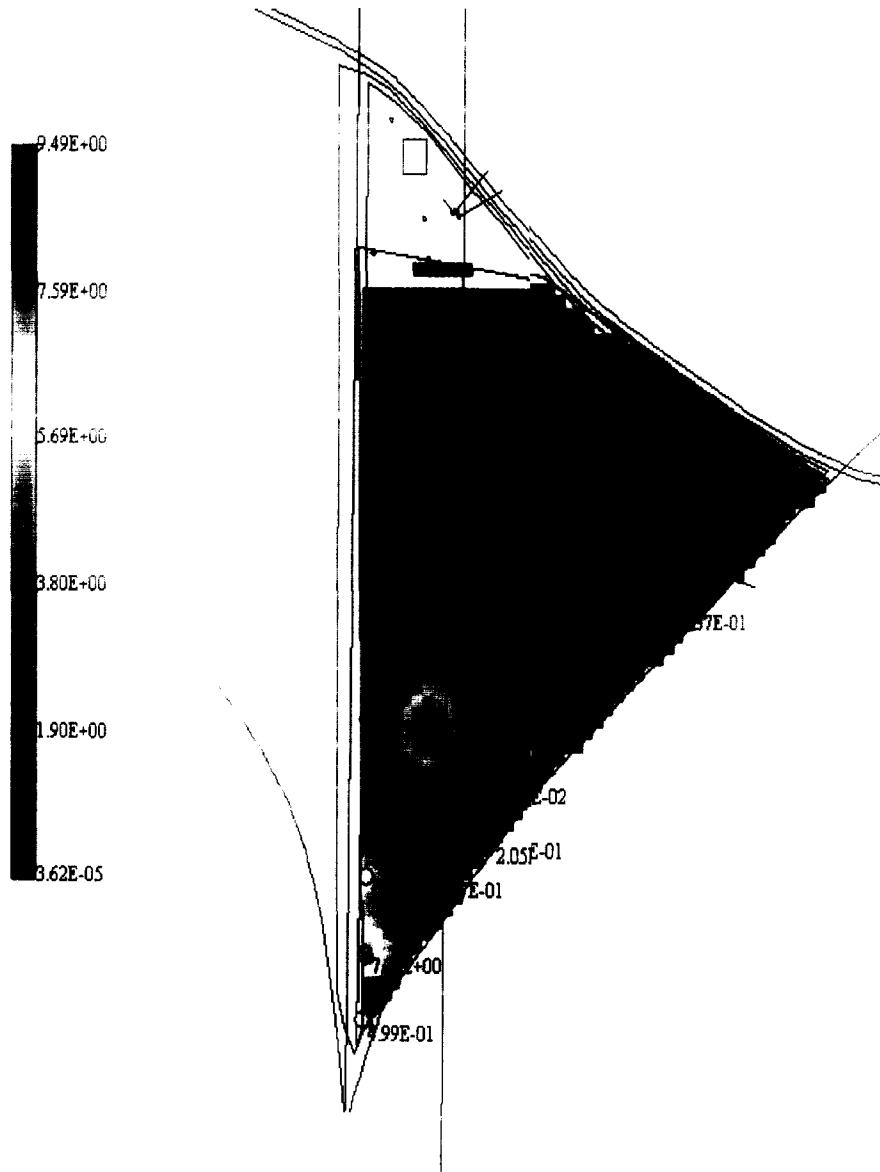
Calumet Continer Site
SADA Plot
Human Health Risk:

Benzene (risk index)



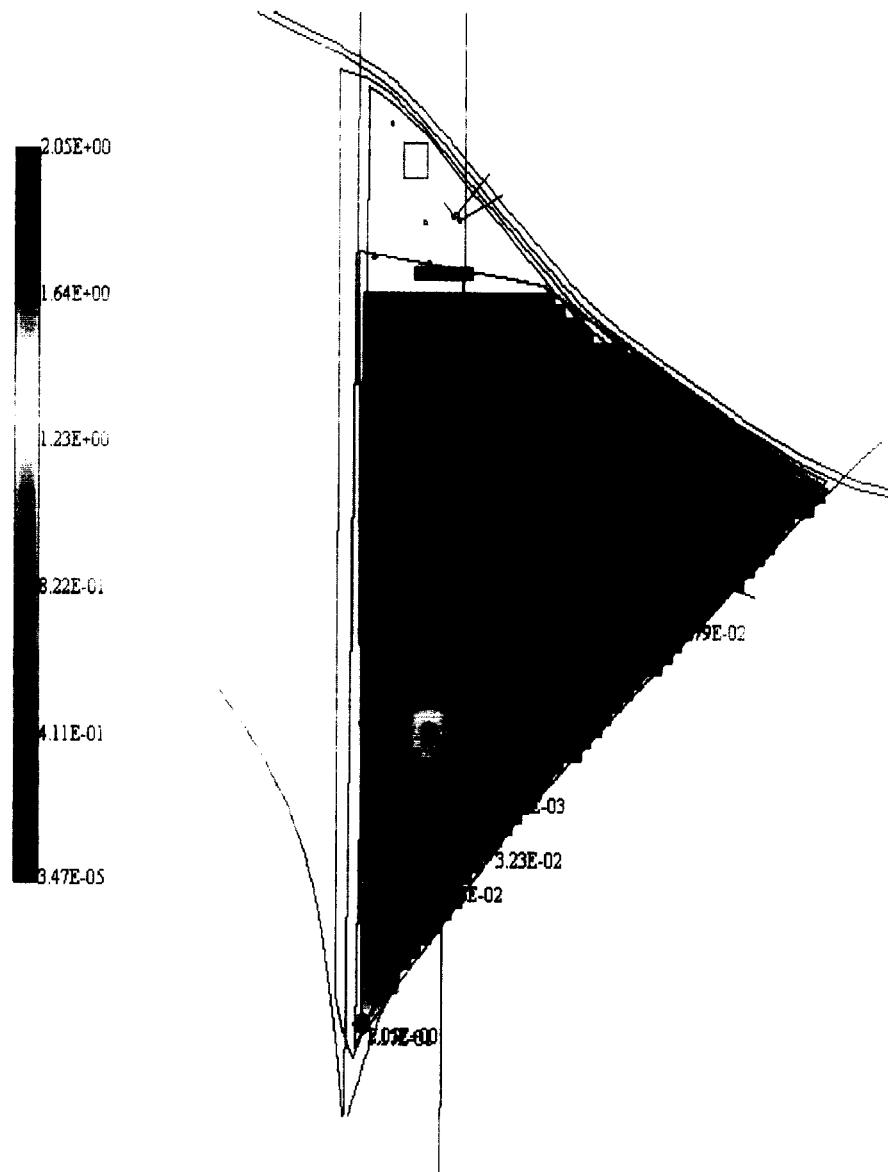
Calumet Continer Site
SADA Plot
Human Health Risk:

Ethylbenzene (risk index)



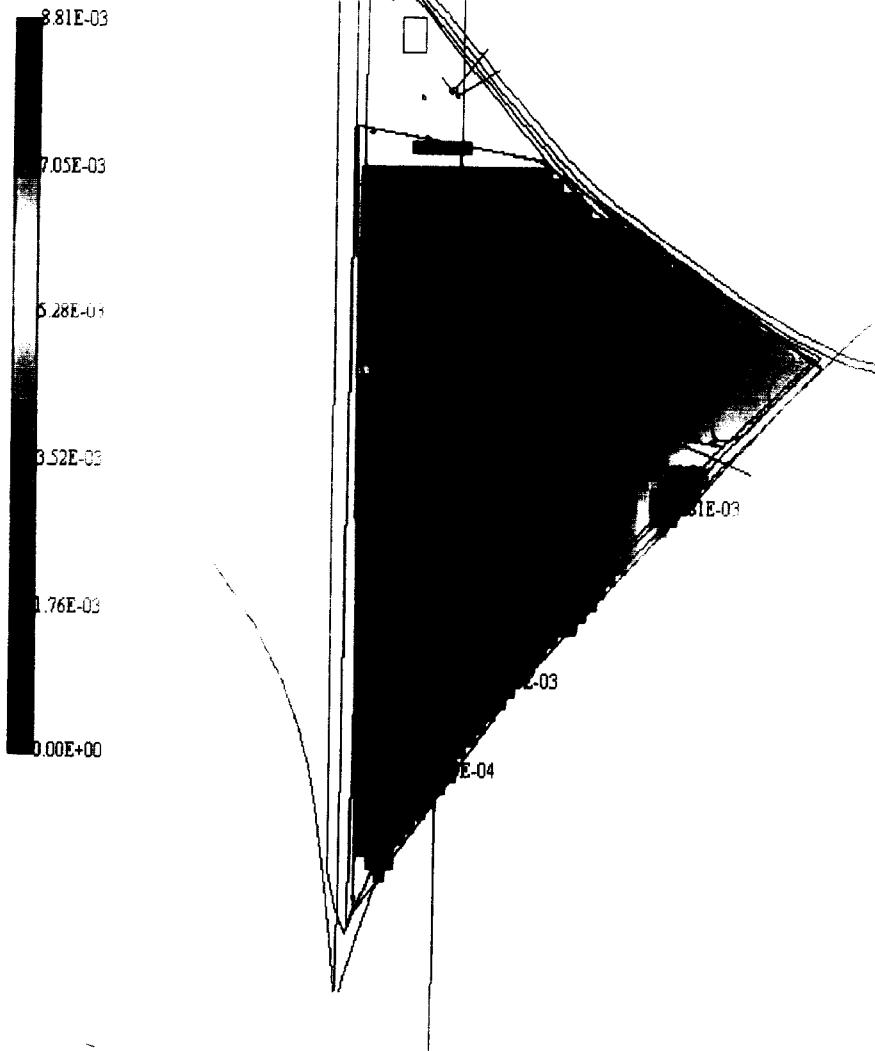
Calumet Container Site
SADA Plot
Human Health Risk:

m-p Xylene (risk index)



Calumet Continer Site
SADA Plot
Human Health Risk:

o-Xylene (risk index)



Calumet Container Site
SADA Plot
Human Health Risk

Toluene (risk index)

